

SEQUENCE LISTING

<110> Wright, David A.
Voytas, Daniel F.

<120> Plant Retroelements and Methods Related Thereto

<130> P-1065A

<140>

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<150> 60/087125

<151> 1998-05-29

<150> 09/322478

<151> 1999-05-28

<160> 165

<170> PatentIn Ver. 2.1

<210> 1

<211> 18

<212> DNA

<213> Glycine max

<400> 1

tggcgccggtt gccaatg

18

<210> 2

<211> 18

<212> DNA

<213> Glycine max

<400> 2

tggcgccggtt gtcgggga

18

<210> 3

<211> 6

<212> DNA

<213> Glycine max

<400> 3

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6

<210> 4
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 4
Met Ala Ser Arg Lys Arg Lys
1 5

<210> 5
<211> 1263
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 5
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cctccagacc atgatgccat cctttccgct ctgtgtactc cagggggacg atttgttctg 480
aatgttgata gtgccccctg gaagctgctg cggaaggatc tgatgacgct cgcgcagaca 540
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tga 1263

<210> 6

<211> 421

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 6

Met Ala Ser Arg Lys Arg Lys Ala Val Pro Thr Pro Gly Glu Ala Ser
1 5 10 15

Asn Trp Asp Ser Ser Arg Phe Thr Phe Glu Ile Ala Trp His Arg Tyr
20 25 30

Gln Asp Ser Ile Gln Leu Arg Asn Ile Leu Pro Glu Arg Asn Val Glu
35 40 45

Leu Gly Pro Gly Met Phe Asp Glu Phe Leu Gln Glu Leu Gln Arg Leu
50 55 60

Arg Trp Asp Gln Val Leu Thr Arg Leu Pro Glu Lys Trp Ile Asp Val
65 70 75 80

Ala Leu Val Lys Glu Phe Tyr Ser Asn Leu Tyr Asp Pro Glu Asp His
85 90 95

Ser Pro Lys Phe Trp Ser Val Arg Gly Gln Val Val Arg Phe Asp Ala
100 105 110

Glu Thr Ile Asn Asp Phe Leu Asp Thr Pro Val Ile Leu Ala Glu Gly
115 120 125

Glu Asp Tyr Pro Ala Tyr Ser Gln Tyr Leu Ser Thr Pro Pro Asp His
130 135 140

Asp Ala Ile Leu Ser Ala Leu Cys Thr Pro Gly Gly Arg Phe Val Leu
145 150 155 160

Asn Val Asp Ser Ala Pro Trp Lys Leu Leu Arg Lys Asp Leu Met Thr
165 170 175

Leu Ala Gln Thr Trp Ser Val Leu Ser Tyr Phe Asn Leu Ala Leu Thr
180 185 190

Phe His Thr Ser Asp Ile Asn Val Asp Arg Ala Arg Leu Asn Tyr Gly

195

200

205

Leu Val Met Lys Met Asp Leu Asp Val Gly Ser Leu Ile Ser Leu Gln
210 215 220

Ile Ser Gln Ile Ala Gln Ser Ile Thr Ser Arg Leu Gly Phe Pro Ala
225 230 235 240

Leu Ile Thr Thr Leu Cys Glu Ile Gln Gly Val Val Ser Asp Thr Leu
245 250 255

Ile Phe Glu Ser Leu Ser Pro Val Ile Asn Leu Ala Tyr Ile Lys Lys
260 265 270

Asn Cys Trp Asn Pro Ala Asp Pro Ser Ile Thr Phe Gln Gly Thr Arg
275 280 285

Arg Thr Arg Thr Arg Ala Ser Ala Ser Ala Ser Glu Ala Pro Leu Pro
290 295 300

Ser Gln His Pro Ser Gln Pro Phe Ser Gln Arg Pro Arg Pro Pro Leu
305 310 315 320

Leu Ser Thr Ser Ala Pro Pro Tyr Met His Gly Gln Met Leu Arg Ser
325 330 335

Leu Tyr Gln Gly Gln Gln Ile Ile Ile Gln Asn Leu Tyr Arg Leu Ser
340 345 350

Leu His Leu Gln Met Asp Leu Pro Leu Met Thr Pro Glu Ala Tyr Arg
355 360 365

Gln Gln Val Ala Lys Leu Gly Asp Gln Pro Ser Thr Asp Arg Gly Glu
370 375 380

Glu Pro Ser Gly Ala Ala Ala Thr Glu Asp Pro Ala Val Asp Glu Asp
385 390 395 400

Leu Ile Ala Asp Leu Ala Gly Ala Asp Trp Ser Pro Trp Ala Asp Leu
405 410 415

Gly Arg Gly Ser Glx
420

<210> 7

<211> 1596

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 7

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acctcacctc ctcttctctc aaattatgct cagatggacg gggaaccggc acaaagagtc 180
acactagagg acttctctaa taccaccact cctcagttct ttacaagtat cacaaggccg 240
gaagtccaag cagatctcct tactcaaggg aacctcttcc atggtcttcc aaatgaagat 300
ccatatgctc atctagcctc atacatagag atatgcagca ccgttaaaat cgccggagtt 360
ccaaaagatg cgatactcct taacctcttt tctttttccc tagcaggaga ggcaaaaaga 420
tggttgcaact cttttaaaag caatagctta agaacatggg aagaagtagt ggaaaaattc 480
ttaaagaagt atttcccaga gtcaaagacc gtcgaacgaa agatggagat ttcttatttc 540
catcaatttc tggatgaatc ccttagcgaa gcaactagacc atttccacgg attgctaaga 600
aaaacaccaa cacacagata cagcgagcca gtacaactaa acatattcat cgatgacttg 660
caactcttaa tcgaaacagc tactagaggg aagatcaagc tgaagactcc cgaagaagcg 720
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gttcccacaa aaagaagcct cttggagctt agcacgcagg acgcaacttt ggtacaaaac 840
aagctgttga cgaggcagat agaagccctc atcgaaaccc tcagcaagct gcctcaacaa 900
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ttcaatcaag gggcaacaag atttaatcac gagccaccgg ggtttaatca aggaagaaac 1140
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gaacggccca ctagaacttt cgggtgctaac atggagagaa gaaccccaag gaaggataaa 1440
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tggccagaag aaggaaggac agagaagaca gaagaagaag agaaggtggc agaagaacct 1560
aagcgtacca agagccagag agcaagggaa gccaaag 1596

<210> 8

<211> 532

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 8

Met Arg Gly Arg Thr Ala Ser Gly Asp Val Val Pro Ile Asn Leu Glu

1

5

10

15

Ile Glu Ala Thr Cys Arg Arg Asn Asn Ala Ala Arg Arg Arg Arg Glu
20 25 30

Gln Asp Ile Glu Gly Ser Ser Tyr Thr Ser Pro Pro Pro Ser Pro Asn
35 40 45

Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp
50 55 60

Phe Ser Asn Thr Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro
65 70 75 80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu
85 90 95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys
100 105 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn
115 120 125

Leu Phe Ser Phe Ser Leu Ala Gly Glu Ala Lys Arg Trp Leu His Ser
130 135 140

Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe
145 150 155 160

Leu Lys Lys Tyr Phe Pro Glu Ser Lys Thr Val Glu Arg Lys Met Glu
165 170 175

Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu
180 185 190

Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser
195 200 205

Glu Pro Val Gln Leu Asn Ile Phe Ile Asp Asp Leu Gln Leu Leu Ile
210 215 220

Glu Thr Ala Thr Arg Gly Lys Ile Lys Leu Lys Thr Pro Glu Glu Ala
225 230 235 240

Met Glu Leu Val Glu Asn Met Ala Ala Ser Asp Gln Ala Ile Leu His
245 250 255

Asp His Thr Tyr Val Pro Thr Lys Arg Ser Leu Leu Glu Leu Ser Thr
260 265 270

Gln Asp Ala Thr Leu Val Gln Asn Lys Leu Leu Thr Arg Gln Ile Glu
275 280 285

Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile
290 295 300

Ser Ser Ser His Ser Ser Val Leu Gln Val Glu Glu Cys Pro Thr Cys
305 310 315 320

Arg Gly Thr His Glu Pro Gly Gln Cys Ala Ser Gln Gln Asp Pro Ser
325 330 335

Arg Glu Val Asn Tyr Ile Gly Ile Leu Asn Arg Tyr Gly Phe Gln Gly
340 345 350

Tyr Asn Gln Gly Asn Pro Ser Gly Phe Asn Gln Gly Ala Thr Arg Phe
355 360 365

Asn His Glu Pro Pro Gly Phe Asn Gln Gly Arg Asn Phe Met Gln Gly
370 375 380

Ser Ser Trp Thr Asn Lys Gly Asn Gln Tyr Lys Glu Gln Arg Asn Gln
385 390 395 400

Pro Pro Tyr Gln Pro Pro Tyr Gln His Pro Ser Gln Gly Pro Asn Gln
405 410 415

Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Leu Gln Phe Ile Lys
420 425 430

Glu Thr Arg Ser His Gln Lys Ser Thr Asp Ala Ala Ile Arg Asn Leu
435 440 445

Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr
450 455 460

Arg Thr Phe Gly Ala Asn Met Glu Arg Arg Thr Pro Arg Lys Asp Lys
465 470 475 480

Ala Val Leu Thr Arg Gly Gln Arg Arg Ala Gln Glu Glu Gly Lys Val
485 490 495

Glu Gly Glu Asp Trp Pro Glu Glu Gly Arg Thr Glu Lys Thr Glu Glu
500 505 510

Glu Glu Lys Val Ala Glu Glu Pro Lys Arg Thr Lys Ser Gln Arg Ala
515 520 525

Arg Glu Ala Lys

530

<210> 9

<211> 603

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 9

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atcatggaag tagagatcct tgactgttgg ggcatagact tcatggggcc ttttccttcg 120
tcatacggga atgtctacat cttggtagct gtggattacg tctccaaatg ggtggaagcc 180
atagccacgc caaaggacga tgccagggtg gtgatcaaat ttctgaagaa gaacattttt 240
tcccgttttg gagtcccacg agccttgatt agtgataggg gaacgcactt ctgcaacaat 300
cagttgaaga aagtccctgga gcactataat gtccgacata aggtggccac accttatcac 360
cctcagacaa atggccaagc agaaatttct aacagggagc tcaagcgaat cctggaaaag 420
acagttgcat caacaagaaa ggattgggtc ttgaagctcg atgatgctct ctgggcctat 480
aggacagcgt tcaagactcc catcggttta tcaccatttc agctagtgtg tgggaaggca 540
tgtcatttac cagtggagct ggagtacaaa gcatattggg ctctcaagtt gctcaacttt 600
gac 603

<210> 10

<211> 201

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 10

Cys Asp Lys Cys Gln Arg Thr Gly Gly Ile Ser Arg Arg Asn Glu Met
1 5 10 15

Pro Leu Gln Asn Ile Met Glu Val Glu Ile Phe Asp Cys Trp Gly Ile
20 25 30

Asp Phe Met Gly Pro Phe Pro Ser Ser Tyr Gly Asn Val Tyr Ile Leu
35 40 45

Val Ala Val Asp Tyr Val Ser Lys Trp Val Glu Ala Ile Ala Thr Pro

50

55

60

Lys Asp Asp Ala Arg Val Val Ile Lys Phe Leu Lys Lys Asn Ile Phe
65 70 75 80

Ser Arg Phe Gly Val Pro Arg Ala Leu Ile Ser Asp Arg Gly Thr His
85 90 95

Phe Cys Asn Asn Gln Leu Lys Lys Val Leu Glu His Tyr Asn Val Arg
100 105 110

His Lys Val Ala Thr Pro Tyr His Pro Gln Thr Asn Gly Gln Ala Glu
115 120 125

Ile Ser Asn Arg Glu Leu Lys Arg Ile Leu Glu Lys Thr Val Ala Ser
130 135 140

Thr Arg Lys Asp Trp Ser Leu Lys Leu Asp Asp Ala Leu Trp Ala Tyr
145 150 155 160

Arg Thr Ala Phe Lys Thr Pro Ile Gly Leu Ser Pro Phe Gln Leu Val
165 170 175

Tyr Gly Lys Ala Cys His Leu Pro Val Glu Leu Glu Tyr Lys Ala Tyr
180 185 190

Trp Ala Leu Lys Leu Leu Asn Phe Asp
195 200

<210> 11

<211> 600

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 11

ttggaggctg ggctcatata ccccatctct gacagcgctt gggtaagccc agtacagggtg 60
gttcccaaga aaggtggaat gacagtggta cgagatgaga ggaatgactt gataccaaca 120
cgaactgtca ctggttggcg aatgtgtatc gactatcgca agctgaatga agccacacgg 180
aaggaccatt tccccttacc tttcatggat cagatgctgg agagacttgc agggcaggca 240
tactactgtt tcttggatgg atactcggga tacaaccaga tcgcggtaga cccagagat 300
caggagaaga cggcctttac atgccccttt ggcgtctttg cttacagaag gatgccattc 360
gggttatgta atgcaccagc cacatttcag aggtgcatgc tggccatttt ttcagacatg 420
gtggagaaaa gcatcgaggt atttatggac gacttctcgg tttttggacc ctcatttgac 480

agctgtttga ggaacctaga gaggggtactt cagaggtgcg aagagactaa cttgggtactg 540
aattgggaaa agtgtcattt catgggttcga gagggcatag tcctaggcca caagatctca 600

<210> 12

<211> 200

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 12

Leu Glu Ala Gly Leu Ile Tyr Pro Ile Ser Asp Ser Ala Trp Val Ser
1 5 10 15

Pro Val Gln Val Val Pro Lys Lys Gly Gly Met Thr Val Val Arg Asp
20 25 30

Glu Arg Asn Asp Leu Ile Pro Thr Arg Thr Val Thr Gly Trp Arg Met
35 40 45

Cys Ile Asp Tyr Arg Lys Leu Asn Glu Ala Thr Arg Lys Asp His Phe
50 55 60

Pro Leu Pro Phe Met Asp Gln Met Leu Glu Arg Leu Ala Gly Gln Ala
65 70 75 80

Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser Gly Tyr Asn Gln Ile Ala Val
85 90 95

Asp Pro Arg Asp Gln Glu Lys Thr Ala Phe Thr Cys Pro Phe Gly Val
100 105 110

Phe Ala Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro Ala Thr
115 120 125

Phe Gln Arg Cys Met Leu Ala Ile Phe Ser Asp Met Val Glu Lys Ser
130 135 140

Ile Glu Val Phe Met Asp Asp Phe Ser Val Phe Gly Pro Ser Phe Asp
145 150 155 160

Ser Cys Leu Arg Asn Leu Glu Arg Val Leu Gln Arg Cys Glu Glu Thr
165 170 175

Asn Leu Val Leu Asn Trp Glu Lys Cys His Phe Met Val Arg Glu Gly

Ile Val Leu Gly His Lys Ile Ser
195 200

<210> 13
<211> 858
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 13
aaggaagaac cactagccct tccacaggat ctcccatatc ctatggcacc caccaagaag 60
aacaaggagc gttactttgc acgtttcttg gaaatattca aagggttaga aatcactatg 120
ccattcgggg aagccttaca gcagatgccc ctctactcca aatttatgaa agacatcctc 180
accaagaagg ggaagtatat tgacaacgag aatattgtgg taggaggcaa ttgcagtgcg 240
ataatacaaaa ggattctacc caagaagttt aaagaccccc gaagtgttac catcccgtgc 300
accattggga aggaagccgt aaacaaggcc ctcatgtatc taggagcaag tatcaatctg 360
atgcccttgt caatgtgcaa aagaattggg aatttgaaga tagatccac caagatgacg 420
cttcaactgg cagaccgctc aatcacaagg ccatatgggg tggtagaaga tgtcctgggc 480
aaggtagccc acttcacttt tccgggtggac tttgttatca tggatatcga agaagacact 540
gagattcccc ttatcttagg cagacccttc atgctgactg ccaactgtgt ggtggatatg 600
gggaaaggga acttagagtt gactattgat aatcagaaga tcacctttga cttatcaag 660
gcaatgaagt acccacagga gggttggaag tgcttcagaa tagaggagat tgatgaggaa 720
gatgtcagtt ttctcgagac accaaagact tcgctagaaa aagcaatggg aaatcattta 780
gactgtctaa ccagtgaaga ggaagaagat ctgaaggctt gcttggaaaa cttggatcaa 840
gaagacagta ttcctgag 858

<210> 14
<211> 286
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 14
Lys Glu Glu Pro Leu Ala Leu Pro Gln Asp Leu Pro Tyr Pro Met Ala
1 5 10 15
Pro Thr Lys Lys Asn Lys Glu Arg Tyr Phe Ala Arg Phe Leu Glu Ile
20 25 30

Phe Lys Gly Leu Glu Ile Thr Met Pro Phe Gly Glu Ala Leu Gln Gln
 35 40 45

Met Pro Leu Tyr Ser Lys Phe Met Lys Asp Ile Leu Thr Lys Lys Gly
 50 55 60

Lys Tyr Ile Asp Asn Glu Asn Ile Val Val Gly Gly Asn Cys Ser Ala
 65 70 75 80

Ile Ile Gln Arg Ile Leu Pro Lys Lys Phe Lys Asp Pro Gly Ser Val
 85 90 95

Thr Ile Pro Cys Thr Ile Gly Lys Glu Ala Val Asn Lys Ala Leu Ile
 100 105 110

Asp Leu Gly Ala Ser Ile Asn Leu Met Pro Leu Ser Met Cys Lys Arg
 115 120 125

Ile Gly Asn Leu Lys Ile Asp Pro Thr Lys Met Thr Leu Gln Leu Ala
 130 135 140

Asp Arg Ser Ile Thr Arg Pro Tyr Gly Val Val Glu Asp Val Leu Val
 145 150 155 160

Lys Val Arg His Phe Thr Phe Pro Val Asp Phe Val Ile Met Asp Ile
 165 170 175

Glu Glu Asp Thr Glu Ile Pro Leu Ile Leu Gly Arg Pro Phe Met Leu
 180 185 190

Thr Ala Asn Cys Val Val Asp Met Gly Lys Gly Asn Leu Glu Leu Thr
 195 200 205

Ile Asp Asn Gln Lys Ile Thr Phe Asp Leu Ile Lys Ala Met Lys Tyr
 210 215 220

Pro Gln Glu Gly Trp Lys Cys Phe Arg Ile Glu Glu Ile Asp Glu Glu
 225 230 235 240

Asp Val Ser Phe Leu Glu Thr Pro Lys Thr Ser Leu Glu Lys Ala Met
 245 250 255

Val Asn His Leu Asp Cys Leu Thr Ser Glu Glu Glu Glu Asp Leu Lys
 260 265 270

Ala Cys Leu Glu Asn Leu Asp Gln Glu Asp Ser Ile Pro Glu
 275 280 285

<210> 15
 <211> 192
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: plant
 retroelement sequence

<400> 15
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 gacaaggatatt ttcaagccat ctattatgct agcaagggtcc tgaatgaagc acagttgaat 120
 tatgcaacca cagaaaagga gatgctagcc attgtctttg ccttggagaa gttcagggtca 180
 tacttgatag gg 192

<210> 16
 <211> 64
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: plant
 retroelement sequence

<400> 16
 Phe Glu Leu Met Cys Asp Ala Ser Asp Tyr Ala Val Gly Ala Val Leu
 1 5 10 15
 Gly Gln Arg Lys Asp Lys Val Phe His Ala Ile Tyr Tyr Ala Ser Lys
 20 25 30
 Val Leu Asn Glu Ala Gln Leu Asn Tyr Ala Thr Thr Glu Lys Glu Met
 35 40 45
 Leu Ala Ile Val Phe Ala Leu Glu Lys Phe Arg Ser Tyr Leu Ile Gly
 50 55 60

<210> 17
 <211> 12286
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant
retroelement sequence

<400> 17

tgataactgc taaataattg tgaattaata gtagaaaatt agtcaaattt tggcttaaaa 60
ttaattattt agcagttatt tgtgattaaa agttagaaaa gcaattaagt tgaatttttg 120
gccatagata tgaaaactga aggtacaaca agcaaaaggc agcagaaagt gaagaaaaag 180
aataaaatct gaagcagacc cagcccaaca cgcgccctta cgcgcgtca cgcgctaagc 240
ttgcaaggca gcacaggcac taagcgaggc gttaagcacg aagatgcagg attcgttacg 300
tgcgctaagc gcgaggcaca cgctaagcgc gcgatccaac agaagcacac gctaagcctg 360
cagcatgcgc taagcgcgcc tacgaaggcc caaagcccat ttctacacct ataaatagag 420
atccaagcca agggagaatg tacaccttgc ctacagagcac ttctctcagc attccaagct 480
tgagctctcc cttttctctc tatattcttt gcttttatta tccattcttt ctttcacccc 540
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taaaaagcca atgatgtatg gtgtacttca agagttatca atgcaaagag gattcattcc 660
aggttttatg ttctaattct ttctttttta tcttgcatth atgtctttaa tttctgttgg 720
gttttattcg ctccgggagag ggtatttctt aataagggtt taagaagtaa tgcattgcac 780
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aattaggttt gtccgggtctt ggcattttca tcaattgtct tcttaaatta tttgatctaa 1140
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gaagagtatt caataaagtg caataaaatc cctatggaaa cgatactcgg acttccgaga 1260
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ctggagacgt tgttcttatt aacttagaaa ttgaagctac gtgtcggcgt aacaacgctg 1560
caagaagaag aaggaggcaa gacatagaag gaagtagtta cacctcacct cctccttctc 1620
caaattatgc tcagatggac ggggaaccgg cacaaagagt cacactagag gacttctcta 1680
ataccaccac tctcagttc ttacaagta tcacaaggcc ggaagtccaa gcagatctcc 1740
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catacataga gatatgcagc accgttaaaa tcgccggagt tccaaaagat gcgatactcc 1860
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<213> Artificial Sequence

<220>

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retroelement sequence

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Gln Asp Ile Glu Gly Ser Ser Tyr Thr Ser Pro Pro Pro Ser Pro Asn
35 40 45

Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp
50 55 60

Phe Ser Asn Thr Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro
65 70 75 80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu
85 90 95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys
 100 105 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn
 115 120 125

Leu Phe Ser Phe Ser Leu Ala Gly Glu Ala Lys Arg Trp Leu His Ser
 130 135 140

Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe
 145 150 155 160

Leu Lys Lys Tyr Phe Pro Glu Ser Lys Thr Val Glu Arg Lys Met Glu
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Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu
 180 185 190

Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser
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Glu Pro Val Gln Leu Asn Ile Phe Ile Asp Asp Leu Gln Leu Leu Ile
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Glu Thr Ala Thr Arg Gly Lys Ile Lys Leu Lys Thr Pro Glu Glu Ala
 225 230 235 240

Met Glu Leu Val Glu Asn Met Ala Ala Ser Asp Gln Ala Ile Leu His
 245 250 255

Asp His Thr Tyr Val Pro Thr Lys Arg Ser Leu Leu Glu Leu Ser Thr
 260 265 270

Gln Asp Ala Thr Leu Val Gln Asn Lys Leu Leu Thr Arg Gln Ile Glu
 275 280 285

Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile
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Ser Ser Ser His Ser Ser Val Leu Gln Val Glu Glu Cys Pro Thr Cys
 305 310 315 320

Arg Gly Thr His Glu Pro Gly Gln Cys Ala Ser Gln Gln Asp Pro Ser
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Arg Glu Val Asn Tyr Ile Gly Ile Leu Asn Arg Tyr Gly Phe Gln Gly
 340 345 350

Tyr Asn Gln Gly Asn Pro Ser Gly Phe Asn Gln Gly Ala Thr Arg Phe
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Asn His Glu Pro Pro Gly Phe Asn Gln Gly Arg Asn Phe Met Gln Gly
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Ser Ser Trp Thr Asn Lys Gly Asn Gln Tyr Lys Glu Gln Arg Asn Gln
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Pro Pro Tyr Gln Pro Pro Tyr Gln His Pro Ser Gln Gly Pro Asn Gln
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Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Leu Gln Phe Ile Lys
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Glu Thr Arg Ser His Gln Lys Ser Thr Asp Ala Ala Ile Arg Asn Leu
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Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr
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Arg Glu Ala Lys Lys Glu Glu Pro Leu Ala Leu Pro Gln Asp Leu Pro
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Thr Lys Lys Gly Lys Tyr Ile Asp Asn Glu Asn Ile Val Val Gly Gly
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Pro Gly Ser Val Thr Ile Pro Cys Thr Ile Gly Lys Glu Ala Val Asn
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Lys Ala Leu Ile Asp Leu Gly Ala Ser Ile Asn Leu Met Pro Leu Ser
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Met Cys Lys Arg Ile Gly Asn Leu Lys Ile Asp Pro Thr Lys Met Thr
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675 680 685

Asp Val Leu Val Lys Val Arg His Phe Thr Phe Pro Val Asp Phe Val
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Ile Met Asp Ile Glu Glu Asp Thr Glu Ile Pro Leu Ile Leu Gly Arg
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Pro Phe Met Leu Thr Ala Asn Cys Val Val Asp Met Gly Lys Gly Asn
725 730 735

Leu Glu Leu Thr Ile Asp Asn Gln Lys Ile Thr Phe Asp Leu Ile Lys
740 745 750

Ala Met Lys Tyr Pro Gln Glu Gly Trp Lys Cys Phe Arg Ile Glu Glu
755 760 765

Ile Asp Glu Glu Asp Val Ser Phe Leu Glu Thr Pro Lys Thr Ser Leu
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Glu Lys Ala Met Val Asn His Leu Asp Cys Leu Thr Ser Glu Glu Glu
785 790 795 800

Glu Asp Leu Lys Ala Cys Leu Glu Asn Leu Asp Gln Glu Asp Ser Ile
805 810 815

Pro Glu Gly Glu Ala Asn Phe Glu Glu Leu Glu Lys Glu Val Pro Ser
820 825 830

Glu Lys Pro Lys Ile Glu Leu Lys Ile Leu Pro Asp His Leu Lys Tyr
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Val Phe Leu Glu Glu Asp Lys Pro Ile Val Ile Ser Asn Ala Leu Thr
850 855 860

Thr Glu Glu Glu Asn Arg Leu Val Asp Val Leu Lys Lys His Arg Glu
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Ala Ile Gly Trp His Ile Ser Asp Leu Lys Glu Ile Ser Pro Ala Tyr
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Cys Met His Arg Ile Met Met Glu Glu Asp Tyr Lys Pro Val Arg Gln
900 905 910

Pro Gln Arg Arg Leu Asn Pro Thr Met Lys Glu Glu Val Arg Lys Glu
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Val Leu Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro Ile Ser Asp Ser
930 935 940

Ala Trp Val Ser Pro Val Gln Val Val Pro Lys Lys Gly Gly Met Thr
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Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn Glu Ala Thr Arg
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Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met Leu Glu Arg Leu
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Val Glu Lys Ser Ile Glu Val Phe Met Asp Asp Phe Ser Val Phe Gly
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Pro Ser Phe Asp Ser Cys Leu Arg Asn Leu Glu Arg Val Leu Gln Arg
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Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys Cys His Phe Met
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| tacacagagt | ttgatgaatt | cactgaagag | ttagagagaa | gaaacaggca | caaggagtta | 10320 |
| acaaatttta | tggatggcaa | cattgatgtt | gccattatga | aggagtctta | tgctaacctc | 10380 |
| tatgaccag | aggataaatc | acctaagcag | gtgaggttca | gaggtcattt | agtgaatttt | 10440 |
| gatgcagatg | ctctgaacac | tttttttatg | accctgtga | tc | | 10482 |

<210> 24

<211> 1857

<212> DNA

<213> Arabidopsis thaliana

<400> 24

| | | | | | | |
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| atgagcaatt | acagtggcag | ttcttctgtt | gatcctgact | acaacatgga | tgagacagaa | 60 |
| tcgtcatctt | caaggccaga | gagagaacag | agagaatacg | aaagtttcag | aaggaaagct | 120 |
| gagatagccc | gaggaaagag | agcgatgaga | gagaggtatg | agcttataga | cgaagatctg | 180 |
| gaggacgagt | acatgcctga | acagactcgc | agagctacca | aacttctgca | caagcccgcac | 240 |

| | | | | | | |
|-------------|-------------|------------|------------|------------|-------------|------|
| atattgacctg | ctgaggaata | tgttaggctt | ttcaagctga | atgagttctg | tagcacgagg | 300 |
| tatccttgct | cgacctcaact | tgcacaactc | ggattgttgg | aagatgttca | gcacctgtac | 360 |
| caaagttgtc | atctggacac | tttgatggct | tatccgtatg | tagcatatga | agatgagaca | 420 |
| atacaattcc | tctccacact | acaagtagag | ctctaccaag | gtatgacctc | tgatgagttg | 480 |
| gattgtgaag | gattgggatt | cttgcgattt | tctgtgtatg | gtcatgagta | caggttatca | 540 |
| atcaagcgat | tggaaggatt | gtttgatttt | cccagtggaa | cgggatctaa | gccaaagtat | 600 |
| gaaagagaag | agttgaaaga | cttgtggatc | accatcggca | gctctgtacc | gttgaatgct | 660 |
| tccagggtcaa | agagcaatca | gatacgcagc | cctgtcatca | ggtaactcca | gcgttctgta | 720 |
| gccaacgtac | tctactcccg | agagattaca | gggactgtca | ctaactctga | tatggagatg | 780 |
| atcgcaatgg | ccctcaaagg | aactctccgc | caaactaaaa | atggcatgtc | cctccagggg | 840 |
| gaagtcaatg | acacacctct | ctctataact | cttctgatcc | atctgtgtgg | atacaaaaac | 900 |
| tgggcgggtca | gcaataaccg | caagagagca | cgaggcgctc | tgtgcatagg | tggcgtgggtg | 960 |
| acacctattc | tgatagcttg | tggagtccca | ctcatttctg | ctggactcga | gccacgagca | 1020 |
| atggatatcg | agcacctacg | tcactgccaa | ttcctggagt | ttgcaatgg | tgacgatttc | 1080 |
| cacaggttca | ggtttgagca | ctctacagac | aggagagcta | acatccttct | ccctagccct | 1140 |
| gaggtcacac | ggataatcga | gggagataac | attgatttta | ggcctgagat | tggacgcctc | 1200 |
| tactatgaga | acgctccacc | attagatgag | gacgatcttc | ttgaagaagc | tgcttcggat | 1260 |
| gggatggatg | aagatggagc | agtaaagttc | gacactagca | tgtatcactt | tgctgaacat | 1320 |
| gtacctccag | cgaggcagag | caagagcttg | actgaagctc | ataagaatta | cagtaaattg | 1380 |
| cagaagtgg | gcaagaagca | ggacaggctg | atcgccaagt | gtttcaagct | tctgacagac | 1440 |
| aagctgagtt | gctcttcctc | caccactgct | attccacagg | tacaacctcc | tatggaaatg | 1500 |
| ccatcgagga | gaattaatgc | acctgcgcac | aggcctgagc | ttagcgagca | gagagtccca | 1560 |
| catgtccagg | ctaggcattc | gtcattcgaa | tcccgggaac | acaagagaag | aaggaaggct | 1620 |
| acactcactc | gatctagcag | cagatcacgc | ctcattcact | cgaggagatc | actcgaccgt | 1680 |
| ggtgctggcc | gcagcagaag | gagagatgtc | gagtttcctc | agagcgggtg | tggccgccac | 1740 |
| agagctgatg | aggtcgagta | cccatctgct | ggagctgata | cagaacaagg | aggttcgtct | 1800 |
| atggcctggg | agcaatcgca | ggcagccatt | gacgagcaac | tacgttcatt | cttcgac | 1857 |

<210> 25

<211> 1254

<212> DNA

<213> Pisum sativum

<400> 25

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| atggaatcca | ggtccggagc | ttcgaaaaag | agaaaaggcg | ggaatagttc | ccgtcccgtg | 60 |
| cccatacaat | tcgacaccga | caaatttgtc | gggccaaaagc | aagcagtaag | atatgttgct | 120 |
| ttggaaaagc | gaaagatttt | gccggaaaag | agatttataa | tcaaccctga | aggcacgaac | 180 |
| cgtacattcg | ccgggctgat | taacagcaaa | aagtgggacc | ggttaatatc | ccccttgaag | 240 |
| cattacgaca | tcgcaacagt | gcgtgagttc | tacgcgaacg | cactgccgaa | cgacgacgag | 300 |
| ccattcacat | ggacgtctag | agtgtccggc | cgtcctgttg | cgttcgatcg | ggatgcaatt | 360 |
| aaccgtgtcc | tgggtgaacc | gtcccatctg | ggagccaatg | agagagacac | ttaccaccaa | 420 |
| gatttaaggc | ttcacgggga | taccgattcg | atttctactg | ccctgctttt | ggaagggaaa | 480 |
| tcagttgagc | tgaacccatc | tggggttccg | atgagatacc | atagggagga | catgattccc | 540 |
| ttggctcaac | tgatcctttt | gttggttcct | acaaacatca | aaccaagtc | tcacacttct | 600 |
| accgtgccga | tcccagtggc | acacttggtg | cacatcatcc | tcacgaatat | ccagattgat | 660 |
| gtggcaagga | ttattgcttt | ggagttgaag | tccgtgattg | aaagcgggct | aaagtcgggg | 720 |
| gaacgagtga | attgtccctt | tgctttccct | tgtctaatca | tggctttgtg | ccaacaagcg | 780 |

agggtgaggc taccctccaa ggggtcaagta aggatcccgc cggccattga tgaccgatac 840
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 gcttctgatg gtccctggtag ttttactcta ggatccgata ctttccagca ggctgtctgc 960
 aactacaact gggattggat ggcggcaact cagcgcgtca tgctcgatat gcacgattct 1020
 atgcagctgt tacagttgca gatgcgcgac cctccgggtg agcattctat gatgtcacgt 1080
 gagcagtttc tgcagcacgc tagctggcct gtggacaggc ctgtgtttgg agagggggcg 1140
 ggtgctggtg caactggtgc tgggtgctttt tctggtgctg ctgatgatga tgatgatgat 1200
 gaggctaccg gttctgaagc cggtagtgat gagggttatg agtccttggg gggc 1254

<210> 26

<211> 564

<212> DNA

<213> Arabidopsis thaliana

<400> 26

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 atcttggaa gttgagatcct tgatgtatgg gggattgatt ttatgggtcc attcccatct 120
 tcatacggta ataaatatat actggctgcc gtagactacg tatcaaagtg ggtcgaagct 180
 attgctagtc ctaccaacga tgcaaaagtt gtgctgaagt tgttcaaaac cataatcttc 240
 ccaagatttg gagttcccag ggtagtaatc agtcatggcg gaaagcattt catcaacaag 300
 gtttttgaga acctcttgaa gaagcatggg gtaaagcagg ttgagatctc caatagggag 360
 ataaaaacaa ttctggaaaa gactgttggg attacaagga aagactggtc tgcaaagcta 420
 gatgatgcat tatgggctta caggacagct ttcaagacct ccataggtac aactcctttc 480
 aatcttctct atggaaaatt atgtcatcta cccgttgagc tcgagtacaa agcaatgtgg 540
 gcggtaaaac ttctgaactt tgac 564

<210> 27

<211> 180

<212> DNA

<213> Arabidopsis thaliana

<400> 27

atcgaggaga tgggtggaggt tttcatggac gatttttcgg tctatggccc ctctttctcc 60
 tcatgtttgt tgaatcttgg cagggtattg actaggtgcg aagagacgaa tcttgttctc 120
 aattgggaaa agtgtcattt catggtgaag gaaggcatag tattggacca caagatatca 180

<210> 28

<211> 192

<212> DNA

<213> Arabidopsis thaliana

<400> 28

tttgaaatca tgtgtgatgc atcagattac gcagtaggag ctgttctagg ccagaaaata 60
 gacaagaagc ttcattgcat atattacgcc agccgaacgt tggatgacgc tcagggaaga 120
 tatgcaacaa ctgagaagga gcttctagct gttgtattcg catttgagaa gttcagaagc 180

<210> 29
<211> 597
<212> DNA
<213> Pisum sativum

<400> 29
ttggatgcga gaatgattta cccgatctcg gatagtcctat gggtcagtcc cgtgcatgtg 60
gttccgaaga aagggtggaaa taccgtcatc cggaatgaca aggatgaatt gatccctacc 120
aaagttgcaa cggggtggag aatgtgtatt gaatataggc ggttgaatac cgcaactcga 180
aaggaccatt ttccactccc gttcatggat caaatgctgg aaagactctc cgggcaacaa 240
tactattgtt tcttggatgg ctattccggg tataaccaaa ttgccgttga cccggccgat 300
cattaaaaga cggctttcac atgtccggtt ggagtgttcg cataccgaaa aatgtccttt 360
gggttgtgca atgcaccgac gactttccaa cgatgtgtgc aagccatttt tgccgacctt 420
aatgagaaaa caatggaagt cttcatggat gacttctcgg tatttggtgt atcctttagt 480
ttatgcttgg caaacttgaa aacgggtgctt gaaagatgtg tgaagaccaa tcttgtgctt 540
aattggtaga agtgccactt catggtgacc gaggggatag tgcttgcca taaagtc 597

<210> 30
<211> 192
<212> DNA
<213> Pisum sativum

<400> 30
tttgagctaa tgtgtgatgc gagcaactat gcaatcggag cgggtattagg ccaaagaaaa 60
gagaaaaaat ttcattcgat acattacgca agtaaaagttc ttaatgaggc tcaaattaac 120
tatgccacca ctgaaaaaga attacttgcg atagtgtatg cacttgaaaa gtttaggtct 180
tatcttatag gg 192

<210> 31
<211> 581
<212> DNA
<213> Pisum sativum

<400> 31
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atccaagagg tcgaagtatt tgattgttgg ggcatcgatt ttgtaggacc attccccctt 120
cttatggtaa cgagtatatg cttgtcgcag ttgaggcgat tgccctacct cgggpcggatg 180
cgaaaacggt aataattttt ttgaagaaaa acatattttc ccgtttcgga accccccgag 240
tggtgataag tgacggaggg tcacactttt gtaatgcacc gttggaaaagc attttaaaac 300
attacggtgt atcacacaga gtggcaactc cgtatcacc acaggctaata ggacaagccg 360
aggtctctaa tcgtgagatt aagagaattc tcgaaaaaac tgtgtcaaata tcgaaaaaag 420
agtggtcaca aaaattggat gaagcggtat gggcataccg taccgccttt aaagctccaa 480
ttggggtcac tccttttcaa ttggtgtttg gtaaaacttg ccatttgccg gtcgaattgg 540

agcacaaagc cttgtgggct ttgaaaatta ataattttga a

581

<210> 32
<211> 1362
<212> DNA
<213> Glycine max

<400> 32
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tcacgtttca ctttcgagat tgcttggcac agataccagg atagcattca gctccggaac 120
atccttccag agaggaatgt agagcttggg ccagggatgt ttgatgagtt cctgcaggaa 180
ctccagaggc tcagatggga ccaggttctg acccgacttc cagagaagtg gattgatgtt 240
gctctggtga aggagtttta ctccaaccta tatgatccag aggaccacag tccgaagttt 300
tggagtgttc gaggacaggt tgtgagattt gatgctgaga cgattaatga tttcctcgac 360
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cctccagacc atgatgccat cctttccgct ctgtgtactc cagggggacg atttgttctg 480
aatgttgata gtgccccctg gaagctgctg cggaaggatc tgatgacgct cgcgcagaca 540
tggagtgtgc tctcttattt taaccttgca ctgacttttc acacttctga tattaatgtt 600
gacagggccc gactcaatta tggcttgggtg atgaagatgg acctggacgt gggcagcctc 660
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ttgatcacia cactgtgtga gattcagggg gttgtctctg ataccctgat ttttgagtca 780
ctcagtcctg tgatcaacct tgcctacatt aagaagaact gctggaacct tgcgatcca 840
tctatcacat ttcaggggac ccgcgcagc cgcaccagag cttcggcgtc ggcactctgag 900
gctcctcttc catcccagca tccttctcag cctttttccc agtgaccacg gcctccactt 960
ctatccacct cagcacctcc atacatgcat ggacagatgc tcaggctcctt gtaccagggg 1020
cagcagatca tcattcagaa cctgtatcga ttgtccctac atttgagat ggatctgcca 1080
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tgatcttatg ctttaatgtt ttcttttata ttatgtttgt gttctctttt atgttttatg 1320
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<210> 33
<211> 192
<212> DNA
<213> Glycine max

<400> 33
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ggcaaaattt ttcagtctat ctactacgcc agcaaagttt taaatgatgc acagggttaac 120
tatgctacca cagaaaaaga aatgttggca attgtttatg cacttgaaaa gttcaaatct 180
tatttggtag gc 192

<210> 34
<211> 597

<212> DNA
<213> Glycine max

<400> 34
ttggagggtt ggctcatata ccccatctct gacaacgctt gggtaagccc agtacagggtg 60
gttcccaaga aagggtggaat gacagtggta caaaatgaga ggaatgactt gataccaaca 120
cgaacagtca ctggctggcg aatgtgtatt gactatcaca agctgaatga agctacacgg 180
aaggaccatt tccccttacc ttctcatggat cagatgctgg agagacttgc agggcaggca 240
tactactgtt tcttggatgg atactcggga tacaaccaga tcgcggtaga ccccatagat 300
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agctgtttga ggaacctaga aatggtactt cagaggtgcg tagagactaa cttggtactg 540
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<210> 35
<211> 603
<212> DNA
<213> Glycine max

<400> 35
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tcatacagga atgtctacat cttggttagct gtggattacg tctccaaatg ggtggaagcc 180
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tcccatttcg gagtcccacg agccttgatt agtgatgggg gaacgcactt ctgcaacaat 300
cagttgaaga aagtccctgga gcactataat gtccgacaca aggtggccac accttatcac 360
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aggacagcgt tcaagactcc catcggtcta tcaccatttc agctagtata tgggaaggca 540
tgtcattttac cagtagagct ggagcacaag gcatattggg ctctcaagtt gctcaacttt 600
gac 603

<210> 36
<211> 150
<212> DNA
<213> Glycine max

<400> 36
cctaaaatac tacaacgaca tgattggtgt tttaggataa ttgactgaaa aacctattat 60
caatttggcg ccgttgccaa ttgggtgttt gtttggtaca tttgagattt cagacttgct 120
tagatcaagt tctttttcaa ttttcttttt 150

<210> 37
<211> 11

<212> DNA
<213> Glycine max

<400> 37
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11

<210> 38
<211> 15
<212> DNA
<213> Glycine max

<400> 38
tggcgccggtt gccgg

15

<210> 39
<211> 27
<212> DNA
<213> Glycine max

<400> 39
tttttggcgc cgttgtcggg gattttg

27

<210> 40
<211> 9
<212> DNA
<213> Glycine max

<400> 40
tttggggga

9

<210> 41
<211> 16
<212> DNA
<213> Glycine max

<400> 41
tttaatttgg gggatt

16

<210> 42
<211> 775
<212> DNA
<213> Nicotiana tabacum

<400> 42

gtgcgtaaag aggttttttaa actggagatt atcaagtgat tggatgccgg ggttatctac 60
cccatcttacg atagttcatg aacttctccg gtgcaatgtg tcccaaagaa ggtggcatga 120
cgggtggtcac caatgagaag aatgagttga ttcctacaag aatggtgacc ggttggagag 180
tgtgcatgga ctatcgcaag ctcaacaaac tcacaaggaa ggatcatttc ccatttccat 240
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agtcgggcta tagccaaatc tttattgctc cgtaggatca cgagaaaata cttttacatg 360
tccttatggg acttttgctt acaagcggat gccatttggg ttgtgtaatg cactagcgaa 420
cttttatagg tgtatgatgg ctatcttcac ggacatgggt aaggactacc ttaaagtttt 480
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agtattggca agatatgaag aaacgaattt ggtactaaat tgggagaagt gtcatttcat 600
gatcgaggaa ggcattgttc ttggccacaa gatctcaaat aatggcattg aagtcgacaa 660
ggcaaagatt aaggtgattt ctaaacttac acctccaact ttggtgaaag gcgtgcggag 720
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<210> 43

<211> 259

<212> PRT

<213> Nicotiana tabacum

<400> 43

Val Arg Lys Glu Val Phe Lys Leu Glu Ile Ile Lys Glx Leu Asp Ala
1 5 10 15

Gly Val Ile Tyr Pro Ile Tyr Asp Ser Ser Glx Thr Ser Pro Val Gln
20 25 30

Cys Val Pro Lys Lys Gly Gly Met Thr Val Val Thr Asn Glu Lys Asn
35 40 45

Glu Leu Ile Pro Thr Arg Met Val Thr Gly Trp Arg Val Cys Met Asp
50 55 60

Tyr Arg Lys Leu Asn Lys Leu Thr Arg Lys Asp His Phe Pro Phe Pro
65 70 75 80

Phe Leu Asp Gln Met Leu Asp Arg Leu Ala Cys Arg Ala Phe Tyr Cys
85 90 95

Phe Leu Asp Val Glx Ser Gly Tyr Ser Gln Ile Phe Ile Ala Pro Glx
100 105 110

Asp His Glu Lys Thr Thr Phe Thr Cys Pro Tyr Gly Thr Phe Ala Tyr
115 120 125

Lys Arg Met Pro Phe Gly Leu Cys Asn Ala Leu Ala Asn Phe Tyr Arg
130 135 140

Cys Met Met Ala Ile Phe Thr Asp Met Val Lys Asp Tyr Leu Lys Val
145 150 155 160

Phe Met Asp Asp Phe Ser Met Val Gly Asp Ser Phe Asp Asp Cys Leu
165 170 175

Glu Asn Leu Asp Lys Val Leu Ala Arg Tyr Glu Glu Thr Asn Leu Val
180 185 190

Leu Asn Trp Glu Lys Cys His Phe Met Ile Glu Glu Gly Ile Val Leu
195 200 205

Gly His Lys Ile Ser Asn Asn Gly Ile Glu Val Asp Lys Ala Lys Ile
210 215 220

Lys Val Ile Ser Lys Leu Thr Pro Pro Thr Leu Val Lys Gly Val Arg
225 230 235 240

Ser Phe Leu Gly His Ala Gly Phe Tyr Gln Phe Phe Ile Lys Asp Phe
245 250 255

Thr Lys Val

<210> 44

<211> 761

<212> DNA

<213> Nicotiana tabacum

<400> 44

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tccaaaaatg agttgattcc gacaagaacc atcaccggtt ggaggggatg catggactac 180
cgcaagtga ataaagtga ctgcaaggat cactttcctt tgccatttct ggatcagatg 240
ctagatcgac ttgctggcg tgccttctat tgcttcttgg atgaatattc tgggtataac 300
caaactctga ttgctccgga agatccggaa aagaccacat tcacttgctc gtatggcaca 360
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atgatggcca ttttctccta tatggtgaaa gacatttttg aggtgttcat ggacgatttt 480
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atcaatctct ggcatataat ttcaaaacat ggcatgtagg tggataaaca aagatagatg 660
tgatttcaag gctccctccc cctacatccg tcaagggagt ccgatgtttt cttgggcatg 720
cgggggttcta ttggagattc ataaaagact tctccaagggt t 761

<210> 45

<211> 254

<212> PRT

<213> Nicotiana tabacum

<400> 45

Val Arg Lys Glu Val Val Lys Leu Leu Asp Val Gly Val Val Tyr Pro
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Ile Ser Asp Ser Ser Trp Thr Ser Pro Val Gln Cys Val Pro Lys Lys
20 25 30

Val Gly Met Thr Val Val Lys Asn Ser Lys Asn Glu Leu Ile Pro Thr
35 40 45

Arg Thr Ile Thr Gly Trp Arg Val Cys Met Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Val Thr Cys Lys Asp His Phe Pro Leu Pro Phe Leu Asp Gln Met
65 70 75 80

Leu Asp Arg Leu Ala Gly Arg Ala Phe Tyr Cys Phe Leu Asp Glu Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Leu Ile Ala Pro Glu Asp Pro Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Phe Val Phe Ser Arg Met Pro Phe
115 120 125

Arg Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Ser Tyr Met Val Lys Asp Ile Phe Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Val Gly His Ser Phe Asp Glu Cys Leu Lys Asn Leu Asp Arg
165 170 175

Val Leu Ala His Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Glu Glu Gly Ile Asn Leu Trp His Lys Ile Ser
195 200 205

Lys His Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Ser Arg
210 215 220

Leu Pro Pro Pro Thr Ser Val Lys Gly Val Arg Cys Phe Leu Gly His

225

230

235

240

Ala Gly Phe Tyr Trp Arg Phe Ile Lys Asp Phe Ser Lys Val
 245 250

<210> 46

<211> 762

<212> DNA

<213> Nicotiana tabacum

<400> 46

gtgcgtaagg aggtgtttta gttgttggat gttgggggtt ggtaccccat ctctgatagc 60
 tcttgcat ttcgcaaaatg ggttgattcc taccaggatc gtcaccgggt ggaagggtatg catggattac 180
 cgaaagtga ataaagtga cgcgaaggat cactttccat tgccttttct tgatcagatg 240
 ttagatcgac ttgctgggcg tgcctttctac tgtttcttgg atgggtattc tggatacaac 300
 caaatcttca ttactccgga agatcaggag aagacaacat tcacttgtcc atatggcacc 360
 tttgcttttt ctaggatgcc ttttggggtt tgtaatgcac cgactacatt ctagcgggat 420
 atgatggcca ttttctactga tatggtggaa gatattttgg aggtgttcat ggacgacttt 480
 agtgttgtgg gtgattcatt tgatgaatgt ttgaataatc ttgatagagt gttggcccat 540
 tgtaaagaaa ccaatcttgt tcttaattgg gagaaatgcc acttcatggt tgaggagggc 600
 atagttcttg ggcataaaat tttaaagcat ggtatagagg tggacaaaagc aaaaattgat 660
 gtgatttcaa ggctccctcc ccctacttct gtcaaggagg tgagaagttt tcttaggcac 720
 gcgggggttct accggagatt catcaaagat ttcaccaaag tt 762

<210> 47

<211> 254

<212> PRT

<213> Nicotiana tabacum

<400> 47

Val Arg Lys Glu Val Phe Lys Leu Leu Asp Val Gly Val Val Tyr Pro
 1 5 10 15

Ile Ser Asp Ser Ser Cys Ile Ser Pro Val Gln Cys Val Pro Lys Lys
 20 25 30

Gly Gly Met Thr Val Val Ala Asn Ser Gln Asn Gly Leu Ile Pro Thr
 35 40 45

Arg Ile Val Thr Gly Trp Lys Val Cys Met Asp Tyr Arg Lys Leu Asn
 50 55 60

Lys Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Leu Asp Gln Met
 65 70 75 80

Leu Asp Arg Leu Ala Gly Arg Ala Phe Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Phe Ile Thr Pro Glu Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Phe Ala Phe Ser Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Glx Arg Tyr Met Met Ala Ile
130 135 140

Phe Thr Asp Met Val Glu Asp Ile Leu Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Val Gly Asp Ser Phe Asp Glu Cys Leu Asn Asn Leu Asp Arg
165 170 175

Val Leu Ala His Cys Lys Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Glu Glu Gly Ile Val Leu Gly His Lys Ile Leu
195 200 205

Lys His Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Ser Arg
210 215 220

Leu Pro Pro Pro Thr Ser Val Lys Gly Val Arg Ser Phe Leu Arg His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 48

<211> 760

<212> DNA

<213> Nicotiana tabacum

<400> 48

gcggaaggag gtcgtcaagc tgttgatgt cggtgttgtg taccocatat ttgatagctc 60
ttggactttg ccggtgcaat atgtgccgaa gaagggtggt atgaccgtgg ttaccaatgt 120
aaaaaatgag ttgattccta ccaggactgt caccgggtgg aggggtgtgca tggattacca 180
caaattgaat aaagtgaccc gcaaggatca ctttccatta ctttttcttg atcagatggt 240
agacagactt gctgggtgtg ctttctactg tttcttggtt ggggtattctg ggtgcaacaa 300
aattttgatt gcacaaaag atcaggagaa gaccaccttt acttgtacgt atggtacctt 360
tgtcttttct aggatgtcat ttgggttgtg taatgcaccg actacattct agagggtgat 420
gatggccata ttacctaca tgggtggagga cattttggag gtgtttatgg atgacttcag 480

tgttgttggg gactagtttg atgaatgttt gaaaaatctt gatagagtgt tggcccgttg 540
 tgaagaagcc aaccttgtgc ttaattggga gaaatgccac ttcattggtg aggagggcat 600
 agtccttagc cataaaattt caaagcatgg tatagaggtg gacaaagcaa aaattgaagt 660
 gatttcaagg ctcttcccc ctacttctgt caaggaggtt agaagttttc ttgggcatgc 720
 ggggttctac tggagattca tcaaagactt cacgaaggtt 760

<210> 49

<211> 253

<212> PRT

<213> Nicotiana tabacum

<400> 49

Arg Lys Glu Val Val Lys Leu Leu Asp Val Gly Val Val Tyr Pro Ile
 1 5 10 15

Phe Asp Ser Ser Trp Thr Leu Pro Val Gln Tyr Val Pro Lys Lys Gly
 20 25 30

Gly Met Thr Val Val Thr Asn Val Lys Asn Glu Leu Ile Pro Thr Arg
 35 40 45

Thr Val Thr Gly Trp Arg Val Cys Met Asp Tyr His Lys Leu Asn Lys
 50 55 60

Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Leu Asp Gln Met Leu
 65 70 75 80

Asp Arg Leu Ala Gly Cys Ala Phe Tyr Cys Phe Leu Asp Gly Tyr Ser
 85 90 95

Gly Cys Asn Lys Ile Leu Ile Ala Pro Lys Asp Gln Glu Lys Thr Thr
 100 105 110

Phe Thr Cys Thr Tyr Gly Thr Phe Val Phe Ser Arg Met Ser Phe Gly
 115 120 125

Leu Cys Asn Ala Pro Thr Thr Phe Glx Arg Cys Met Met Ala Ile Phe
 130 135 140

Thr Tyr Met Val Glu Asp Ile Leu Glu Val Phe Met Asp Asp Phe Ser
 145 150 155 160

Val Val Gly Asp Glx Phe Asp Glu Cys Leu Lys Asn Leu Asp Arg Val
 165 170 175

Leu Ala Arg Cys Glu Glu Ala Asn Leu Val Leu Asn Trp Glu Lys Cys
 180 185 190

His Phe Met Val Glu Glu Gly Ile Val Leu Ser His Lys Ile Ser Lys
 195 200 205

His Gly Ile Glu Val Asp Lys Ala Lys Ile Glu Val Ile Ser Arg Leu
 210 215 220

Leu Pro Pro Thr Ser Val Lys Gly Val Arg Ser Phe Leu Gly His Ala
 225 230 235 240

Gly Phe Tyr Trp Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 50

<211> 762

<212> DNA

<213> Oryza sativa

<400> 50

gtgcgtaagg aggtgttttaa gttcctgtat gccaggatta tttatctcgt accatacagc 60
 gagtgggtta gcccagttca ggtcgtgcc aagaaggag gaatgacggc cgttgcaaat 120
 gctcaaaatg aactaatccc gcaacgaacc gtaaccggat ggagaatgtg catcgattac 180
 aggaaactta acaaggctac aaaaaaggat catttcccgc tacccttcat tgatgaaatg 240
 ttggaacggc tggcaaatca ttccttcttc tgtttccttg atgggtattc aggatatcat 300
 caaattccca tccatccgga ggaccagagt aagactacgt tcacatgtcc atatggcacc 360
 tatgcgtatc gtaggatgcc ctttggactg tgcaacactc ctgcatcttt ccaaagggtg 420
 atgatgtcta ttttctcgga catgatcgag gatatcatgg aagtcttcat ggatgacttc 480
 tcggtctatg gaaagacttt gggtcattgt ctgcagaatc tagacaaagt cttacaacga 540
 tgccaagaaa aggacctagt gcttaactgg gaaaagtgcc atttcatggt ctgtgaaggg 600
 atagtcttg ggcacgagat gtccgaacga ggagtcgaag ttgatcgtgc taaaattgat 660
 gtgatagatc agcttctcct acccgtgaac atcaaaggaa tccgcagctt ctttgggtcac 720
 gctggccttt atagaaggtt catcaaggac ttcacaaaag tt 762

<210> 51

<211> 254

<212> PRT

<213> Oryza sativa

<400> 51

Val Arg Lys Glu Val Phe Lys Phe Leu Tyr Ala Arg Ile Ile Tyr Leu
 1 5 10 15

Val Pro Tyr Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
 20 25 30

Gly Gly Met Thr Ala Val Ala Asn Ala Gln Asn Glu Leu Ile Pro Gln

35

40

45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr His Gln Ile Pro Ile His Pro Glu Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Thr Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
130 135 140

Phe Ser Asp Met Ile Glu Asp Ile Met Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Lys Thr Leu Gly His Cys Leu Gln Asn Leu Asp Lys
165 170 175

Val Leu Gln Arg Cys Gln Glu Lys Asp Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Cys Glu Gly Ile Val Leu Gly His Arg Val Ser
195 200 205

Glu Arg Gly Val Glu Val Asp Arg Ala Lys Ile Asp Val Ile Asp Gln
210 215 220

Leu Pro Pro Pro Val Asn Ile Lys Gly Ile Arg Ser Phe Phe Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 52

<211> 761

<212> DNA

<213> Oryza sativa

<400> 52

gtgcgcaagg aggttttgaa attgctgcat gccaggatta tctatcccgt accatacagt 60
 gagaggggta gcccagtcca ggttgtgcca aagaagggag gaatggcggg cgttgcaa 120
 gctcagaatg aactaattac gcaacaaacc gtaaccggat ggaggatgtg tatcgattac 180
 aggaaactca acaaggctac aaaaaaggat catttcccgc tacccttcat tgttgaaatg 240
 ttggaacggc tggcaaatca ttcttctttt tgtttccttg atggatattt cggatatcat 300
 caaattccca tccatccgga ggactagagt aagactacgt tcacatgtcc atatggcacc 360
 tatgcgtatc ataggatgtc ctttggactg tgcaacgctc ctgcatcttt ccaaggtgta 420
 tgatgtctat tttctcggac atgatcgagg atatcatgga agtcttcatg gatgacttct 480
 cggctctatg aaagactttc ggtcattgtc tgcaaaatct agacaaagtc ttacaacgat 540
 gccaaagaaa ggacctgggtg cttaactggg aaaagtgaca tttcatggtc cgtgaaggga 600
 tagttcttgg gcatcgagtg ttcgaacaag gaatcgaagt tgatcatgct aaaattgatg 660
 tgatagatca gcttctctct cccgtgaaca tcaaaggat cgcagcttc ttgggtcatg 720
 tcggctttta tagaaggttc atcaaggact tactaaagt t 761

<210> 53

<211> 254

<212> PRT

<213> Oryza sativa

<400> 53

Val Arg Lys Glu Val Leu Lys Leu Leu His Ala Arg Ile Ile Tyr Pro
 1 5 10 15

Val Pro Tyr Ser Glu Arg Val Ser Pro Val Gln Val Val Pro Lys Lys
 20 25 30

Gly Gly Met Ala Val Val Ala Asn Ala Gln Asn Glu Leu Ile Thr Gln
 35 40 45

Gln Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60

Lys Ala Thr Lys Lys Asp His Phe Pro Leu Pro Phe Ile Val Glu Met
 65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
 85 90 95

Phe Gly Tyr His Gln Ile Pro Ile His Pro Glu Asp Glx Ser Lys Thr
 100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr His Arg Met Ser Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
 130 135 140

Phe Ser Asp Met Ile Glu Asp Ile Met Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Lys Thr Phe Gly His Cys Leu Gln Asn Leu Asp Lys
165 170 175

Val Leu Gln Arg Cys Gln Glu Lys Asp Leu Val Leu Asn Trp Glu Lys
180 185 190

Glx His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Arg Val Phe
195 200 205

Glu Gln Gly Ile Glu Val Asp His Ala Lys Ile Asp Val Ile Asp Gln
210 215 220

Leu Pro Pro Pro Val Asn Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 54
<211> 762
<212> DNA
<213> Oryza sativa

<400> 54
gtgcggaaaag aggtttttaa gctcctgcat gccgggatta tttataccgt tccatgcagt 60
gagtgggtca gcacagtcca gggtgggccc aagatgggat gaatgacggt cgttgcaaat 120
gctcaaaata aacttatccc gcaaccaacc ataaccggat ggaggatgtg catagactac 180
aggaaactca acaaggctac aaaagaggat cattttccgc tacccttcat tgatgaaatg 240
ttggaacgga tgacaaatca ttccttcttc tgtttctctg atgggtattc cggatatcat 300
caaattccca tccgtccaga ggaccagagt aagactacgt tcacatgtcc atatggcacc 360
tatgcgatc gtaggatgtc cttcggactg tgcaacgctc ctgcatctt ccaaagggtg 420
atgttgctca ttttctcgga catgatcgaa gatatcatga aagtcttcat ggatgacttc 480
tcagtttatg gaaagacttt cggtcattgt ctgtagaatc tagacaaagt cttacaacga 540
tgccaagaaa atgacctagt gtttaattgg gaaaagtgcc attttatggt ccgtgaaggg 600
atagttcttg ggcacgcagt atccgaatga ggaatcgaag ttgatcgtgc taaaatcgat 660
gttatagatc aaattcgtcc tcctgcgaat atcaaaggaa tccgcagctt cttgggacat 720
gccggctttt atagaagggt cctcaaggac ttcacaaaag tt 762

<210> 55
<211> 254
<212> PRT
<213> Oryza sativa

<400> 55

Val Arg Lys Glu Val Phe Lys Leu Leu His Ala Gly Ile Ile Tyr Thr
1 5 10 15

Val Pro Cys Ser Glu Trp Val Ser Thr Val Gln Val Gly Pro Lys Met
20 25 30

Gly Glx Met Thr Val Val Ala Asn Ala Gln Asn Lys Leu Ile Pro Gln
35 40 45

Pro Thr Ile Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Glu Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
65 70 75 80

Leu Glu Arg Met Thr Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr His Gln Ile Pro Ile Arg Pro Glu Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Leu Ser Ile
130 135 140

Phe Ser Asp Met Ile Glu Asp Ile Met Lys Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Lys Thr Phe Gly His Cys Leu Glx Asn Leu Asp Lys
165 170 175

Val Leu Gln Arg Cys Gln Glu Asn Asp Leu Val Phe Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Arg Val Ser
195 200 205

Glu Glx Gly Ile Glu Val Asp Arg Ala Lys Ile Asp Val Ile Asp Gln
210 215 220

Ile Arg Pro Pro Ala Asn Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Leu Lys Asp Phe Thr Lys Val
245 250

<210> 56
 <211> 762
 <212> DNA
 <213> Oryza sativa

<400> 56
 gtgcgtaagg aggtcttgaa gctcttgcac gccgagatta tttatcccgt accatataga 60
 gagtgggtta gcccggtcta ggttatgccg aagaaggac gaatgacggt cattgcaa 120
 gctcaaaatg aacttattcc gcaacgaaca gtaaccggat ggaggatgtg catagattac 180
 atgaaactta acaaggctac gaaaaaggat catttccac tacccttcat tgatgaaatg 240
 ttggaacggc tggcaaatca ttctttcttc cgtttccttg atgggtattc taggtatgat 300
 caaattccca tccatccgga ggaccaaagt aagactacgt tcacatgttc gtatgatacc 360
 tatgcttacc gtaggatgtc cttcggactg tgcaacgctc ctgcatcttt ccaaagggtg 420
 atgatgtcta ttttctccga catgattaag gacattatgg aagtcttcat gcatgacttc 480
 tctatattatg gaaagacctc cggtcattgt ctacaaaatt tagacaaaat tttgcaacga 540
 tgccaagaga aggacctggt acttaattgg gaaaagtgtc atttcatggg ccgtgaaggg 600
 atagttctta gtcacgaggt gtccgaataa ggaatcgaag ttgatcgtgc taaaaactat 660
 gtaatatagatt agcttcttcc tctgtgaac attaagggga tccgcaattt tttgggacat 720
 gctggctttt atagaagggt catcaaagac ttcacaaagg tt 762

<210> 57
 <211> 254
 <212> PRT
 <213> Oryza sativa

<400> 57
 Val Arg Lys Glu Val Leu Lys Leu Leu His Ala Glu Ile Ile Tyr Pro
 1 5 10 15
 Val Pro Tyr Arg Glu Trp Val Ser Pro Val Glx Val Met Pro Lys Lys
 20 25 30
 Gly Arg Met Thr Val Ile Ala Asn Ala Gln Asn Glu Leu Ile Pro Gln
 35 40 45
 Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Met Lys Leu Asn
 50 55 60
 Lys Ala Thr Lys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
 65 70 75 80
 Leu Glu Arg Leu Ala Asn His Ser Phe Phe Arg Phe Leu Asp Gly Tyr
 85 90 95
 Ser Arg Tyr Asp Gln Ile Pro Ile His Pro Glu Asp Gln Ser Lys Thr

100

105

110

Thr Phe Thr Cys Ser Tyr Asp Thr Tyr Ala Tyr Arg Arg Met Ser Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
 130 135 140

Phe Ser Asp Met Ile Lys Asp Ile Met Glu Val Phe Met His Asp Phe
 145 150 155 160

Ser Ile Tyr Gly Lys Thr Ser Gly His Cys Leu Gln Asn Leu Asp Lys
 165 170 175

Ile Leu Gln Arg Cys Gln Glu Lys Asp Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Ser His Arg Val Ser
 195 200 205

Glu Glx Gly Ile Glu Val Asp Arg Ala Lys Asn Tyr Val Ile Asp Glx
 210 215 220

Leu Pro Ser Pro Val Asn Ile Lys Gly Ile Arg Asn Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 58

<211> 762

<212> DNA

<213> Hordeum vulgare

<400> 58

gtgcgcaagg aggttttagaa gttcctggaa gcaggatatca tctatcgtgt tgctcatagt 60
 gattggttga gtcgggtgca ttgtgtccct aagaaggagg gcattaccgt tgtccctaata 120
 gataaggatg aattgatccc acagaggact attactggct ataggatggg gattgatttt 180
 aggaaattga ataaagccac taggaaagat cattaccctt tgccttttat cgaccaaagt 240
 cgagaaaggc tgtctaaaca cacacacttc tgctttctaa acggttatatt tggtttctcc 300
 caaataccag ttgcacaatc tgatcaggag aaaaccactt tcacctgccc ttttggtaca 360
 tttgcttata gacgtatgac ttttggttta tgtaatgcac ctgcctcctt tcaaagatgt 420
 atgatggcta tattccctga cttttgtgaa aagattgttg aggttttcat ggatgacttc 480
 tccatttacg gatcttcctt tgatgattgc ctcagcaacc ttgatcgagt cttgcagaga 540
 tgtaaagaca ccaatctttt cttgaattgg aagaagtgcc actttatggg taatgacggc 600
 atcgtcttag gacataaatt ttctgaaaga ggtattgaag tcgataaggc taaggttgat 660
 ggaatcgaga aaatgccata cccacagat atcaaaggga taagaagttt ccttggtcat 720

gctgggtttct atagaaggtt cataaaagac ttcactaagg tt

762

<210> 59

<211> 254

<212> PRT

<213> Hordeum vulgare

<400> 59

Val Arg Lys Glu Val Glx Lys Phe Leu Glu Ala Gly Ile Ile Tyr Arg
1 5 10 15

Val Ala His Ser Asp Trp Leu Ser Arg Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
35 40 45

Arg Thr Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Arg Glu Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asn Gly Tyr
85 90 95

Phe Gly Phe Ser Gln Ile Pro Val Ala Gln Ser Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Thr Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Pro Asp Phe Cys Glu Lys Ile Val Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Ile Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
165 170 175

Val Leu Gln Arg Cys Lys Asp Thr Asn Leu Phe Leu Asn Trp Lys Lys
180 185 190

Cys His Phe Met Val Asn Asp Gly Ile Val Leu Gly His Lys Phe Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Gly Ile Glu Lys
 210 215 220

Met Pro Tyr Pro Thr Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 60
 <211> 762
 <212> DNA
 <213> Hordeum vulgare

<400> 60
 gtgcgtaaag aggtcctaaa gttcctggaa gcggttatta tctatcctgt tgctcacaac 60
 gattgggtga gtccggtgca ttgcgtccct aagaagggat gcattaccgt tgcctcctaat 120
 gataaggatg aattgatccc acataggatt attactggct ataggatggg gatcgatttt 180
 agggaaatga ataaagccac taggaaagaa cattaccctt tgccttttag cgaccaaag 240
 ctagaaagggt tgtctaaaca cacacacttc tgccttctag acggttattc tagtttctcc 300
 caaatactag ttgcacaatc tgatcaggag aaaaccactt tcacctaccg gttcgggtacc 360
 tttgcttata gacgtatgcc ttttggttta tgtaatgcac ctgccacctt tcaaagatgt 420
 atgatggcta tattctctga cttttgtgaa aagtttgtcg aggttttcat ggatgacttt 480
 tccggtttacg gatcttcctt tgatgattgc ctcaacaacc ttgatcgggt cttgcagaga 540
 tgtaaagata ctaatcttgt cttgaattgg gagaagtgcc actttatggg taatgaaggc 600
 atcgtcttag gacataaaaat ttccgaaaga ggtattgaat tcgataaggc taagggttgg 660
 gcaatcaaga aaatgccata cccacagat atcaaaggta taagaagttt cttggtccat 720
 gctggtttct atagaagggt catcaaggac ttacaaaagg tt 762

<210> 61
 <211> 254
 <212> PRT
 <213> Hordeum vulgare

<400> 61
 Val Arg Lys Glu Val Leu Lys Phe Leu Glu Ala Gly Ile Ile Tyr Pro
 1 5 10 15
 Val Ala His Asn Asp Trp Val Ser Pro Val His Cys Val Pro Lys Lys
 20 25 30
 Gly Cys Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro His
 35 40 45
 Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Met Asn
 50 55 60

Lys Ala Thr Arg Lys Glu His Tyr Pro Leu Pro Phe Ser Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Ser Phe Ser Gln Ile Leu Val Ala Gln Ser Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Tyr Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Ser Asp Phe Cys Glu Lys Phe Val Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Ser Ser Phe Asp Asp Cys Leu Asn Asn Leu Asp Arg
165 170 175

Val Leu Gln Arg Cys Lys Asp Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Glu Arg Gly Ile Glu Phe Asp Lys Ala Lys Val Gly Ala Ile Lys Lys
210 215 220

Met Pro Tyr Pro Thr Asp Ile Lys Gly Ile Arg Ser Phe Leu Val His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 62

<211> 757

<212> DNA

<213> Hordeum vulgare

<400> 62

gaaaagaggt tgtgaagctc ctggatgaag gtattatcta tcatgttgct catagcgatt 60
gggtgagtc ggtgcatagc gttcctaaga agggaggcat taccgttgct cctaatagata 120
aggatgaatt gatccgcag aggattatca ctggctatag gatggtgatc gatttcagga 180
aactgaataa agccactagg aaagatcatt accctttgcc ttttatcgac catatgctag 240

aaaggttgtc caaactcaca cacttctgct ttctagacgg ttattctagt ttctcccaaa 300
 taccagttgc acaatctgat caggagaaaa ccactttcac ctgcccttc ggtaccttg 360
 cttatagacg tatgcctttt ggcttatgta atgcacctgc cacctttcaa agatgtatga 420
 tggtatatt ctctaacttt tgtgaaaata ttgtcgaggt tttcatggat gacttttccg 480
 tttacggggtc ttcttttgat gattgcctca gcaaccttga tcgagtctta cagagatgta 540
 aagacaccaa tcttgtcttg aatggggaga agtgccactt tatggttaat gaaggcatcg 600
 tcttaggaca taaaatttct gaaagaggta ttgaagtcga taaggctaag gttgatgcaa 660
 tcgacaaaat gccatacccc acagatatca aaggtataag aagtttcctt ggtcatgggtg 720
 gtttctatag aaggtttatc aaagatttca caaaggt 757

<210> 63

<211> 251

<212> PRT

<213> Hordeum vulgare

<400> 63

Lys Glu Val Val Lys Leu Leu Asp Glu Gly Ile Ile Tyr His Val Ala

1 5 10 15

His Ser Asp Trp Val Ser Pro Val His Ser Val Pro Lys Lys Gly Gly

20 25 30

Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln Arg Ile

35 40 45

Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn Lys Ala

50 55 60

Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Ile Asp His Met Leu Glu

65 70 75 80

Arg Leu Ser Lys Leu Thr His Phe Cys Phe Leu Asp Gly Tyr Ser Ser

85 90 95

Phe Ser Gln Ile Pro Val Ala Gln Ser Asp Gln Glu Lys Thr Thr Phe

100 105 110

Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe Gly Leu

115 120 125

Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile Phe Ser

130 135 140

Asn Phe Cys Glu Asn Ile Val Glu Val Phe Met Asp Asp Phe Ser Val

145 150 155 160

Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg Val Leu

165

170

175

Gln Arg Cys Lys Asp Thr Asn Leu Val Leu Asn Gly Glu Lys Cys His
180 185 190

Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser Glu Arg
195 200 205

Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Asp Lys Met Pro
210 215 220

Tyr Pro Thr Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His Gly Gly
225 230 235 240

Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys
245 250

<210> 64

<211> 740

<212> DNA

<213> Hordeum vulgare

<400> 64

gtgcgtaaag aggtgattaa attcctagaa gaaggtatta tctatcctgt tgctcacagc 60
gattgggtga gtccggtgca ttgcattcct aagaaaggag gcattaccgt tgtccctaata 120
gataaggatg aattgatccc atagaggatt attactggct ataggatggg gattgatttt 180
aggaagttga ataaagccac taggaaagat cattaccctt tgccttttat cgaccaaata 240
ctagaaaggc tgtctaaaca cacacacttc ttgtttctgg acggttatac tggtttctcc 300
caaataccag ttgcacaatt tgatcaggag aaaaccactt taacctgaca tttcgggtacc 360
tttgcttata tacgtatgcc ttttggttg tgtaatgcac ctgccacctt tcaaagatgt 420
atgatggcta tattctccga cttctgtgaa aagattgtca atgttttcat ggataacttc 480
tccgtttacg ggtgttcctt tgatgattgc ctcaacaacg ttgatcgagt cttacagaga 540
tgtaaggaca ccaatgttgt cttgaattgg gagaagtgtc actttatggg taatgaaggc 600
atcgtcttag gacataagat ttctgaaaga ggtattaaag ttgataaggc taaggttgat 660
gcaatcgaga aaatgccata tccacagata tcaaaggat aagaagtttc cttgggtcatg 720
ctggtttcta tagaaggttc 740

<210> 65

<211> 247

<212> PRT

<213> Hordeum vulgare

<400> 65

Val Arg Lys Glu Val Ile Lys Phe Leu Glu Glu Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala His Ser Asp Trp Val Ser Pro Val His Cys Ile Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Glx
35 40 45

Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Lys His Thr His Phe Leu Phe Leu Asp Gly Tyr
85 90 95

Thr Gly Phe Ser Gln Ile Pro Val Ala Gln Phe Asp Gln Glu Lys Thr
100 105 110

Thr Leu Thr Glx His Phe Gly Thr Phe Ala Tyr Ile Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Ser Asp Phe Cys Glu Lys Ile Val Asn Val Phe Met Asp Asn Phe
145 150 155 160

Ser Val Tyr Gly Cys Ser Phe Asp Asp Cys Leu Asn Asn Val Asp Arg
165 170 175

Val Leu Gln Arg Cys Lys Asp Thr Asn Val Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Glu Arg Gly Ile Lys Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
210 215 220

Met Pro Tyr Pro Thr Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe
245

<210> 66

<211> 762

<212> DNA
<213> Avena sativa

<400> 66
gtgcgaaagg aggttttcaa gctcatggat gctggtatta tttaccctat tgctgatagt 60
gaatgggtta gtcattgttca ttgtgttccct aaaaagggag gtattaccgt tgccccaat 120
gataatgatg agcttattcc tcaaagaata gtggtaggct ataggatgtg catcgatttt 180
aggaaagtca ataaagttac taagaaagat cactaccgc ttccttttat tgatcaaagt 240
ttggaaagat tttctaaaaa gaccattttt tgttttcttg atggttatc tggtttctct 300
caaattggtt ttaaacaaca agatcaagaa aaaactactt ttacttgccc ttatggaact 360
tatgcttata gatgtatgcc ttttggttta tgtaatgctc cttctacttt cctaagggtgc 420
atgtctgcta tctttcatgg tttttgtgag gaaattgtag aagtgttcat ggacgacttt 480
tctgtctacg gaacttcttt tgataattgt ctgcacaacc ttgataaagt tttacagaga 540
tgtgaaggaa ctaatcttgt tcttaattgg gagaaatgcc acttcatggt taatgaaggg 600
attgttcttg ggcataaagt ttctaaaaga ggcataagaag ttgatagagc taagggttag 660
gcaattgaga agatgccatg tccaagagac atcaaaggta ttcgtagtat ccttggtcat 720
gctggtttct ataggaggtt catcaaagac ttcacaaagg tt 762

<210> 67
<211> 254
<212> PRT
<213> Avena sativa

<400> 67
Val Arg Lys Glu Val Phe Lys Leu Met Asp Ala Gly Ile Ile Tyr Pro
1 5 10 15
Ile Ala Asp Ser Glu Trp Val Ser His Val His Cys Val Pro Lys Lys
20 25 30
Gly Gly Ile Thr Val Val Pro Asn Asp Asn Asp Glu Leu Ile Pro Gln
35 40 45
Arg Ile Val Val Gly Tyr Arg Met Cys Ile Asp Phe Arg Lys Val Asn
50 55 60
Lys Val Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80
Leu Glu Arg Phe Ser Lys Lys Thr His Phe Cys Phe Leu Asp Gly Tyr
85 90 95
Ser Gly Phe Ser Gln Ile Val Val Lys Gln Gln Asp Gln Glu Lys Thr
100 105 110
Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Cys Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ser Thr Phe Leu Arg Cys Met Ser Ala Ile
 130 135 140

Phe His Gly Phe Cys Glu Glu Ile Val Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Ser Val Tyr Gly Thr Ser Phe Asp Asn Cys Leu His Asn Leu Asp Lys
 165 170 175

Val Leu Gln Arg Cys Glu Gly Thr Asn Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
 195 200 205

Lys Arg Gly Ile Glu Val Asp Arg Ala Lys Val Glu Ala Ile Glu Lys
 210 215 220

Met Pro Cys Pro Arg Asp Ile Lys Gly Ile Arg Ser Ile Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 68

<211> 762

<212> DNA

<213> Avena sativa

<400> 68

gtgcgcaaag aggtctttaa gttccttgat gctgggtatta tttaccctat tgctgatagt 60
 caatgggtta gccttgttca ttgtgtcccc aagaaagggg gaataactgt tgtgcctaata 120
 gaagataatg agcttataacc ccaaagagta gtggttggtg atagaatgtg cattgatttt 180
 agaaggatta ataaagttac taggaaagat cattatcctt tgccctttat tgatcaaata 240
 cttgagaggt tgtccaaaaa gactcacttt tgttttcttg atggtcattc tgggttttct 300
 caaattgttg tgaaagcaca agaccaagag aaaactactt tcacttgtcc ttatggtact 360
 tatgattata ggcgtatgcc ttttggttta tgtaatgctc ctgctacctt tcagagatgt 420
 atgtctgcta tatttcatgg tttttgtgaa gaaattgtgg aggttttcat ggacgatttt 480
 tctgtctatg gaacttcttt tgataactgt ttgcacaacc ttgataaatt tttgcagaga 540
 tttgaagaaa ccaaccttgt tcttaattgg gagaaatgcc atttcatggt taatgaaggg 600
 attgttcttg gacacaagat ctcagaaaaga ggcattgaag ttgacagagc caaaattgaa 660
 gcaattgaga acatgccttg ccctagagat attaaaggta ttogtagtat ccttggtcat 720
 gctggtttct atagtaggtt catcaaagac tttacaaaag tt 762

<210> 69

<211> 254
<212> PRT
<213> Avena sativa

<400> 69

Val Arg Lys Glu Val Phe Lys Phe Leu Asp Ala Gly Ile Ile Tyr Pro
1 5 10 15

Ile Ala Asp Ser Gln Trp Val Ser Leu Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Val Pro Asn Glu Asp Asn Glu Leu Ile Pro Gln
35 40 45

Arg Val Val Val Val Tyr Arg Met Cys Ile Asp Phe Arg Arg Ile Asn
50 55 60

Lys Val Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Lys Lys Thr His Phe Cys Phe Leu Asp Gly His
85 90 95

Ser Gly Phe Ser Gln Ile Val Val Lys Ala Gln Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Asp Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Ser Ala Ile
130 135 140

Phe His Gly Phe Cys Glu Glu Ile Val Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Thr Ser Phe Asp Asn Cys Leu His Asn Leu Asp Lys
165 170 175

Phe Leu Gln Arg Phe Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Arg Ala Lys Ile Glu Ala Ile Glu Asn
210 215 220

Met Pro Cys Pro Arg Asp Ile Lys Gly Ile Arg Ser Ile Leu Gly His

225

230

235

240

Ala Gly Phe Tyr Ser Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 70
 <211> 756
 <212> DNA
 <213> Avena sativa

<400> 70
 aaggagggttt ttaaactcct tgatgttggt attatttacc ctattgctga tagtgaatgg 60
 gttagtcttg ttcatttgtt tcctaaaaag ggaggtatta ccgttggtcc taatgataat 120
 gatgagctta ttcctcaaag aatagtggta ggctatagga tgtgcataga ttttaggaaa 180
 gttaataaag ttactaagaa agatcactac ccgcttcctt ttattgatca aatggttgaa 240
 aggttgctta aaaagaccca tttttgtttt cttgatgggt actctagctt ctctcaaatt 300
 gctgttaaac aacaagatca agaaaaaact acttttactt gcccttatgg aacttttgct 360
 tatagacgta tgcctattgg tttatgtaat gtcctgcta cttttcaaag gtgtatgtct 420
 gctatatattc atgggttttg tgaggaaatt gtagaagtgt tcatggatga cttttctgtc 480
 tatggaactt cttttgataa ttgcctgcac aaccttgata aagttttgca gagatgtgaa 540
 gaaactaata ttgttcttaa ttggggagaaa ttccacttca tggttaatga agggattgtc 600
 cttgggcata aagtttctaa aagaggcata gaagttgata gagctaaggt tgaggcaatt 660
 gagaagatgc catgcccaag agacatcaaa ggtatacgta gtatccttgg tcatgctggg 720
 ttctatagaa ggtttatcaa agacttcaca aaggtt 756

<210> 71
 <211> 252
 <212> PRT
 <213> Avena sativa

<400> 71
 Lys Glu Val Phe Lys Leu Leu Asp Val Gly Ile Ile Tyr Pro Ile Ala
 1 5 10 15
 Asp Ser Glu Trp Val Ser Leu Val His Cys Val Pro Lys Lys Gly Gly
 20 25 30
 Ile Thr Val Val Pro Asn Asp Asn Asp Glu Leu Ile Pro Gln Arg Ile
 35 40 45
 Val Val Gly Tyr Arg Met Cys Ile Asp Phe Arg Lys Val Asn Lys Val
 50 55 60
 Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met Leu Glu
 65 70 75 80

Arg Leu Ser Lys Lys Thr His Phe Cys Phe Leu Asp Gly Tyr Ser Ser
85 90 95

Phe Ser Gln Ile Ala Val Lys Gln Gln Asp Gln Glu Lys Thr Thr Phe
100 105 110

Thr Cys Pro Tyr Gly Thr Phe Ala Tyr Arg Arg Met Pro Ile Gly Leu
115 120 125

Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Ser Ala Ile Phe His
130 135 140

Gly Phe Cys Glu Glu Ile Val Glu Val Phe Met Asp Asp Phe Ser Val
145 150 155 160

Tyr Gly Thr Ser Phe Asp Asn Cys Leu His Asn Leu Asp Lys Val Leu
165 170 175

Gln Arg Cys Glu Glu Thr Asn Ile Val Leu Asn Trp Glu Lys Phe His
180 185 190

Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser Lys Arg
195 200 205

Gly Ile Glu Val Asp Arg Ala Lys Val Glu Ala Ile Glu Lys Met Pro
210 215 220

Cys Pro Arg Asp Ile Lys Gly Ile Arg Ser Ile Leu Gly His Ala Gly
225 230 235 240

Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 72

<211> 748

<212> DNA

<213> Secale cereale

<400> 72

gtgcggaag aggtcttta actcctagag gcagggtatta actatcccat tgctgatagc 60
cagcgggtaa gtcattgtcca ttgtgttcct aagaaaggag gtatgactgt cgtccctaag 120
gataaagatg aatttatccc gcaaagaata gttacagggt ataggatggg aattgatttt 180
cgtaagttaa ataaagctac tatgaaagat cattaccctt tgccatttat tgatcaaagt 240
ccagacaggt tatccaaaca tactcatttc tgctttctag atgggtattc tgggtttctc 300
caaatacctt tgtcaaagg ggatcaagaa aagaccacct ttacttgtcc ttccgggtacc 360
tttgcttata gaggtatgcc ttttggttta tgtaatgcac ctgctacctt tcaaagatgt 420
atgatcgta tattctctgt cttttttgaa aagattgttg aggtattcat ggatgatttc 480

tccgtttatg gaacttcttt tgatgattgc ttaagcaacc ttgatcgagt tttgcagaga 540
 tgtgaagata ctaaccttgt cttgaattgg gagaagtgcc actttatggt taatgaaggc 600
 attttcttgg gacataaaat ttctgaaaga ggtactgaag ttgagaaagc taaagtggat 660
 gctattgaaa agatgccatg ccctaaggat atgaaaggta tacgaagttt ccttggtcac 720
 gctgggtttt ataggaggtt cataaaag 748

<210> 73

<211> 249

<212> PRT

<213> Secale cereale

<400> 73

Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Ile Asn Tyr Pro
 1 5 10 15

Ile Ala Asp Ser Gln Arg Val Ser His Val His Cys Val Pro Lys Lys
 20 25 30

Gly Gly Met Thr Val Val Pro Lys Asp Lys Asp Glu Phe Ile Pro Gln
 35 40 45

Arg Ile Val Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
 50 55 60

Lys Ala Thr Met Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
 65 70 75 80

Pro Asp Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
 85 90 95

Ser Gly Phe Ser Gln Ile Pro Leu Ser Lys Gly Asp Gln Glu Lys Thr
 100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Gly Met Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Ile Val Ile
 130 135 140

Phe Ser Val Phe Phe Glu Lys Ile Val Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Ser Val Tyr Gly Thr Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
 165 170 175

Val Leu Gln Arg Cys Glu Asp Thr Asn Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Phe Leu Gly His Lys Ile Ser
 195 200 205

Glu Arg Gly Thr Glu Val Glu Lys Ala Lys Val Asp Ala Ile Glu Lys
 210 215 220

Met Pro Cys Pro Lys Asp Met Lys Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys
 245

<210> 74
 <211> 762
 <212> DNA
 <213> Secale cereale

<400> 74
 gtgcggaagg aggtcgttaa gcttccagag gcaggtatta tctatcccgt tgctgatagc 60
 cagtgggtaa gtcattgtcca ttgtgtccct aagaaggag gtatgactgt cgttcctaata 120
 gacaaacatg aattgatccc gcaaagaata gttacagggt ataggatggt aattgatttc 180
 cgtaagttaa ataaagctac taagaaagat cattaccctt tgccatttat tgatcaaag 240
 ctagacaggt tatccaaaca tactcatttt tgctttctag atgggtatta tggtttctct 300
 caaatacctg tgtcaaaagg ggatcaagaa aagaccactt tcacttgtcc tttcgggtacc 360
 tttgcttata gacgtatgcc ttttggttta tgtaatgcac ctgctacctt tcaaagatgt 420
 atgatggcta tattatctga tttttgagaa aagattgttg aggttttcat ggatgatttc 480
 tccggttacg gaacttcttt tgatgactac ttaagcaaca atgatcgagt tttgcagaga 540
 tgtgaagaca ctaatcttgt tttgaattgg gagaagtgc actttatggt taatgaaggc 600
 attgtcttg gacaaaaaat ttctgaaaga ggtattgaag ttgacaaagc taaagtcgat 660
 gctgttgaaa agatgccatg ccccaaggac atcaaaggta tacgaagttt ccttggtcat 720
 gttgggtttt ataggagggt catcaaagac ttcacgaaag tt 762

<210> 75
 <211> 254
 <212> PRT
 <213> Secale cereale

<400> 75
 Val Arg Lys Glu Val Val Lys Leu Pro Glu Ala Gly Ile Ile Tyr Pro
 1 5 10 15

Val Ala Asp Ser Gln Trp Val Ser His Val His Cys Val Pro Lys Lys
 20 25 30

Gly Gly Met Thr Val Val Pro Asn Asp Lys His Glu Leu Ile Pro Gln

35

40

45

Arg Ile Val Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
 50 55 60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
 65 70 75 80

Leu Asp Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
 85 90 95

Tyr Gly Phe Ser Gln Ile Pro Val Ser Lys Gly Asp Gln Glu Lys Thr
 100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
 130 135 140

Leu Ser Asp Phe Glx Glu Lys Ile Val Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Ser Val Tyr Gly Thr Ser Phe Asp Asp Tyr Leu Ser Asn Asn Asp Arg
 165 170 175

Val Leu Gln Arg Cys Glu Asp Thr Asn Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly Gln Lys Ile Ser
 195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Val Glu Lys
 210 215 220

Met Pro Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 76

<211> 762

<212> DNA

<213> Secale cereale

<400> 76

gtgcgtaagg aggtgggttaa gctcctagaa gcaggtatta tctatccagt tgctgatagt 60
 cagtgggttaa gtcattgtcca ttatgttctt aagaaaggag gtatgactgt tgccccaat 120
 gataaagatg aattgatccc gcaaagaata gttacagggt ataggatggg aagtgatttc 180
 cgtaagttga ataaagccac taagaaagat cattaccctt tgccatttat tgatcaaagt 240
 ctagaaagggt tatccaaaca tactcatttc ttctttctag atggttattc tggtttctct 300
 caaataacctg tgtcaaaagg ggatcaagaa aagaccacct ttacttgtag tttcgggtacc 360
 tttgcttata gacgtatgcc ttttggttta tgtaatgcac ctgctacctt tcaaagatgc 420
 atgatggcta tattctctga cttttgtgaa aagattgttg aggtattcat ggatgatttc 480
 tccgtttacg gaacttcttt tgatgattgc ttaagcaacc ttgatcgagt tttgcagaga 540
 tgtgaagaca ctaaccttgt cttgaattgc gagaagtgcc actttatggg taatgaaggc 600
 attgtcttgg gacataaaat ttctgaaata ggtattgaag ttgacaaagc taaagttgat 660
 gctattgaaa agatgccatg cgcaaaggac atcaaaggta tacggagttt ctttgggtcat 720
 gccgggtttt ataggagggt catcaaagat ttctcaaagg tt 762

<210> 77

<211> 254

<212> PRT

<213> Secale cereale

<400> 77

Val Arg Lys Glu Val Val Lys Leu Leu Glu Ala Gly Ile Ile Tyr Pro
 1 5 10 15

Val Ala Asp Ser Gln Trp Val Ser His Val His Tyr Val Pro Lys Lys
 20 25 30

Gly Gly Met Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
 35 40 45

Arg Ile Val Thr Gly Tyr Arg Met Val Ser Asp Phe Arg Lys Leu Asn
 50 55 60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
 65 70 75 80

Leu Glu Arg Leu Ser Lys His Thr His Phe Phe Phe Leu Asp Gly Tyr
 85 90 95

Ser Gly Phe Ser Gln Ile Pro Val Ser Lys Gly Asp Gln Glu Lys Thr
 100 105 110

Thr Phe Thr Cys Thr Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
 130 135 140

Phe Ser Asp Phe Cys Glu Lys Ile Val Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Thr Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
165 170 175

Val Leu Gln Arg Cys Glu Asp Thr Asn Leu Val Leu Asn Cys Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Glu Ile Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
210 215 220

Met Pro Cys Ala Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Ser Lys Val
245 250

<210> 78

<211> 759

<212> DNA

<213> Secale cereale

<400> 78

gtgcgcaagg aagttttttaa gtttctagag gcaggataaa tctatccagt tgctgatagc 60
cagtgggtaa gtcctgtcca ttgtgtccct aagaaggagg gtatgactgt agttcctaata 120
gataaagatg aattgatctc gcaaagaatt gttacagggt ataggatggg aattgatttt 180
cgcaaattaa ataaagccac taagaaagat caataccctt tgccttttat tgatcaaata 240
ctagaaagggt tatccaaaca caccattttt tgctttctag atgggtattc tagtttctct 300
caaataccta tgtcaaaagg ggataaagaa aagaccactt ttacttgtcc ctttgggtact 360
ttgcttatag acgtatgcct tttggtttat gtaatgcac tgctacctt caaacatgca 420
tgatggctat actctatgat ttttgtgaaa gaatgttgat gttttcatgg atgatttttg 480
tatttacgaa acttcttttg atgattgctt gagcaacctt gatcgagttt tgcagagatg 540
tgaagaaact aatcttgtct tgaactggga aaagtccac tttatgggta atgaaggcat 600
tgcttgggac ataaaatttc tgaaagagg accgaagtg acaaagctaa agttgatgct 660
gttgaaaaga tgccatgtcc caaggacatc aaaggataaa gaagtttcct tggatcatgcc 720
gggttttata ggaggtttat caaggacttc accaagggtt 759

<210> 79

<211> 254

<212> PRT

<213> Secale cereale

<400> 79

Val Arg Lys Glu Val Phe Lys Phe Leu Glu Ala Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala Asp Ser Gln Trp Val Ser Pro Val His Cys Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Ser Gln
35 40 45

Arg Ile Val Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp Gln Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Lys His Thr His Phe Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Ser Phe Ser Gln Ile Pro Met Ser Lys Gly Asp Lys Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Ser Ala Thr Phe Gln Thr Cys Met Met Ala Ile
130 135 140

Leu Tyr Asp Phe Cys Glu Arg Ile Val Asp Val Phe Met Asp Asp Phe
145 150 155 160

Cys Ile Tyr Glu Thr Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
165 170 175

Val Leu Gln Arg Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Ser His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Glu Arg Gly Thr Glu Val Asp Lys Ala Lys Val Asp Ala Val Glu Lys
210 215 220

Met Pro Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 80
 <211> 761
 <212> DNA
 <213> Triticum aestivum

<400> 80
 gtgcgtaagg aggttctcaa gtttctggag gtaggtataa tttatcccgt tgctgatagt 60
 cagtgggtaa gtccctgtcca ttgtgtccct aagaaggag gtattactgt tgtccctaatt 120
 gataaagatg aattgattcc tcaaagaatt attacggta taggatggta attgatttcc 180
 gcaaattaaa taaagccact aagagagatc attaccctt accttttatt gatcaaattc 240
 tagaaagatt atgcaaacat acacattatt gcttccaaga tggttatcct ggtttttctc 300
 aaataacctgt gtcggctaaa gatcaatcaa agactacttt tacatgccct tttggtactt 360
 ttgcttatag atgtatgcct tttggtttat gtaatgcacc tgctaccttt caaagatgca 420
 tgatggctat attctctgat ttttgtgaaa agatttgtga ggttttcatt gatgactttt 480
 ccgtctatgg ttccctctttt gatgattgct tgagcaatct tgatcgagtt ttgcagagat 540
 gtgaagaaac taatcttgct ttgaattggg aaaagtgtca ctttatgggt aatgaaggta 600
 ttgtcttggg gcacaaagtt tctgaaagag gtattgaagt tgataaagcc aagggtgaca 660
 ctattgaaaa gataccatgt cccaaggaca tcaaaggtag aagaagtttc cttgggtcacg 720
 ccggattttta taggagggttc ataaaagatt tcacaaaggt t 761

<210> 81
 <211> 254
 <212> PRT
 <213> Triticum aestivum

<400> 81
 Val Arg Lys Glu Val Leu Lys Phe Leu Glu Val Gly Ile Ile Tyr Pro
 1 5 10 15
 Val Ala Asp Ser Gln Trp Val Ser Pro Val His Cys Val Pro Lys Lys
 20 25 30
 Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
 35 40 45
 Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
 50 55 60
 Lys Ala Thr Lys Arg Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Ile
 65 70 75 80
 Leu Glu Arg Leu Cys Lys His Thr His Tyr Cys Phe Gln Asp Gly Tyr
 85 90 95
 Pro Gly Phe Ser Gln Ile Pro Val Ser Ala Lys Asp Gln Ser Lys Thr

100

105

110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Cys Met Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile
 130 135 140

Phe Ser Asp Phe Cys Glu Lys Ile Cys Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Ser Val Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Leu Asp Arg
 165 170 175

Val Leu Gln Arg Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
 195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Thr Ile Glu Lys
 210 215 220

Ile Pro Cys Pro Lys Asp Ile Lys Gly Thr Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 82

<211> 780

<212> DNA

<213> Triticum aestivum

<400> 82

gtgcggaagg aggtgttta gtccttgag gcaggataa tttatcccg tgctgatagt 60
 aagtgggtaa ttcctgtcca ttaagtgatc gtgattactg ttgttcctaa gaagggaggt 120
 attaccgttg ttcctaata taaagatgaa ttgattcctc aaagaaccat tactggttat 180
 aggatggtaa ttgatttccg caaattaaat aaggctacta aaaaatatca ttaccctta 240
 ctttttatcg atcaaagct agaaagatta tccaaacata cacatttttg ctttctagat 300
 gggtactctg gtttctctca aatacctgtg tcagccaaag atcaatcaaa gactactttt 360
 acatgccctt ttggtacttt tgcttataga cgtatgcctt ttggtttatg taatgcacct 420
 gctacctttc aaagatacat gatggctata ttatctgact tttgtgaaaa gatttgtgag 480
 gttttcatgg acgactcttc catctatgga tcttcttttg atgattgctt gagcaacctt 540
 gatcgagttt tgcagagatg tgaagaaact tatcttgtct tgaattggga aaagtgccaa 600
 tttatggtta atgaaggat tgtcctgggg cataaagttt ctgaaagagg tattcgagtt 660
 gataaagcca aggttgatgc tattgaaaag atgccatgct ccatggacat caaagggtata 720

agaagtttcc ttggtcatgc cgggttttat aggaggttca taaaagactt cacgaaggtt 780

<210> 83

<211> 260

<212> PRT

<213> Triticum aestivum

<400> 83

Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Ile Ile Tyr Pro
1 5 10 15

Val Ala Asp Ser Lys Trp Val Ile Pro Val His Glx Val Ile Val Ile
20 25 30

Thr Val Val Pro Lys Lys Gly Gly Ile Thr Val Val Pro Asn Asp Lys
35 40 45

Asp Glu Leu Ile Pro Gln Arg Thr Ile Thr Gly Tyr Arg Met Val Ile
50 55 60

Asp Phe Arg Lys Leu Asn Lys Ala Thr Lys Lys Tyr His Tyr Pro Leu
65 70 75 80

Pro Phe Ile Asp Gln Met Leu Glu Arg Leu Ser Lys His Thr His Phe
85 90 95

Cys Phe Leu Asp Gly Tyr Ser Gly Phe Ser Gln Ile Pro Val Ser Ala
100 105 110

Lys Asp Gln Ser Lys Thr Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala
115 120 125

Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln
130 135 140

Arg Tyr Met Met Ala Ile Leu Ser Asp Phe Cys Glu Lys Ile Cys Glu
145 150 155 160

Val Phe Met Asp Asp Ser Ser Ile Tyr Gly Ser Ser Phe Asp Asp Cys
165 170 175

Leu Ser Asn Leu Asp Arg Val Leu Gln Arg Cys Glu Glu Thr Tyr Leu
180 185 190

Val Leu Asn Trp Glu Lys Cys Gln Phe Met Val Asn Glu Gly Ile Val
195 200 205

Leu Gly His Lys Val Ser Glu Arg Gly Ile Arg Val Asp Lys Ala Lys
 210 215 220

Val Asp Ala Ile Glu Lys Met Pro Cys Pro Met Asp Ile Lys Gly Ile
 225 230 235 240

Arg Ser Phe Leu Gly His Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp
 245 250 255

Phe Thr Lys Val
 260

<210> 84
 <211> 762
 <212> DNA
 <213> Triticum aestivum

<400> 84
 gtgcgtaagg aggtattcaa gcttctggag gcaggtataa tttatcccgt tgttgatagt 60
 caatgggtaa gtcctgtcca ttgtgtcctt aagaagggag gtattactgt tgtccctaata 120
 gataaagatg aattgattcc gcaaagaatt atcacagggt ataggatggg aattgatttc 180
 cgtaagttaa ataaagctac taagaaagat cattaccctt taccttttat tgatcaaata 240
 ttagaaagat tatgcaaaca tacacattat tgctttctag atggttattc tggtttctct 300
 caaataacctg tgtcagctaa ggatcaatca aagactactt ttacatgccc ttttggtact 360
 tttgggtata gacgtatgcc tttcgattta tgtaaatgcac ctgctacctt tcaaatatgc 420
 atgatggcta tattctctga cttttgcgaa aagatttgtg aggttttcat ggacgacttt 480
 tccgtctatg gttcctctta tgatgattgc ttgagcaatc ttaatcgagt tttgcagaga 540
 tgtgaagaaa ctaatcttgt cttgaattgg gaaaagtgcc actttatggg taatgaagg 600
 attgtcttgg ggcacaaaagt ttctgaacga ggtattgaag ttgataaggc caagggtgat 660
 gctattgaaa agatgacatg tcccaaggac atcaaaggta taagaagttt ccttggtcac 720
 gccagatttt ataggagggt cataaaaagac ttcacaaagg tt 762

<210> 85
 <211> 254
 <212> PRT
 <213> Triticum aestivum

<400> 85
 Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Ile Ile Tyr Pro
 1 5 10 15
 Val Val Asp Ser Gln Trp Val Ser Pro Val His Cys Val Leu Lys Lys
 20 25 30
 Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
 35 40 45

Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
50 55 60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Cys Lys His Thr His Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Phe Ser Gln Ile Pro Val Ser Ala Lys Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Gly Tyr Arg Arg Met Pro Phe
115 120 125

Asp Leu Cys Asn Ala Pro Ala Thr Phe Gln Ile Cys Met Met Ala Ile
130 135 140

Phe Ser Asp Phe Cys Glu Lys Ile Cys Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Tyr Gly Ser Ser Tyr Asp Asp Cys Leu Ser Asn Leu Asn Arg
165 170 175

Val Leu Gln Arg Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
210 215 220

Met Thr Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Arg Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 86
<211> 762
<212> DNA
<213> Triticum aestivum

<400> 86
gtgcggaaag aggtgctcaa gcttctggag gcaggtataa tttatcccgt tgctgagagt 60

cagtgggtaa gtccctgtcca ttgtgtccct aagaaggag gtattactgt tgccctaata 120
 gataaagatg aattgattcc tcaaagaatt attacagggt ataggatggg aattgatttc 180
 cgcaaattaa ataaagccac caagaaagat cattaccctt taccttttat tgatcaaata 240
 ctagaaagat tatgcaaaca tacacattat tgcttcctag atgggtattc tgggtttctt 300
 caaataacctg tgcgggctaa agatcaatca aagactactt ttacatgccc ttttggtact 360
 tttgcttata gacgtatgcc ttttggttta tgtaatgcac cttctacctt tcaaagatgc 420
 atgatggcta tattctctga tttttgtgaa aagatttgtg aggttttcat ggacgaattt 480
 tccgtctatg gttcctcttt tgatgattgc ttgagcaatc ctgatcgagt tttgcagaga 540
 tgtgaagaaa ctaatcttgc cttgaattgg gaaaagtgcc actttatggg taatgaaggg 600
 attgtcttgg ggcacaaaagt ttctgaaaga ggtattgaag ttgataaagc caagggtgac 660
 gctattgaaa agatgccatg tcccaaggac atcaaaggta taagaagttt ccttggtcac 720
 gccggatttt ataggagggt cataaaagac ttcacaaagg tt 762

<210> 87

<211> 254

<212> PRT

<213> Triticum aestivum

<400> 87

Val Arg Lys Glu Val Leu Lys Leu Leu Glu Ala Gly Ile Ile Tyr Pro
 1 5 10 15

Val Ala Glu Ser Gln Trp Val Ser Pro Val His Cys Val Pro Lys Lys
 20 25 30

Gly Gly Ile Thr Val Val Pro Asn Asp Lys Asp Glu Leu Ile Pro Gln
 35 40 45

Arg Ile Ile Thr Gly Tyr Arg Met Val Ile Asp Phe Arg Lys Leu Asn
 50 55 60

Lys Ala Thr Lys Lys Asp His Tyr Pro Leu Pro Phe Ile Asp Gln Met
 65 70 75 80

Leu Glu Arg Leu Cys Lys His Thr His Tyr Cys Phe Leu Asp Gly Tyr
 85 90 95

Ser Gly Phe Ser Gln Ile Pro Val Ser Ala Lys Asp Gln Ser Lys Thr
 100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ser Thr Phe Gln Arg Cys Met Met Ala Ile
 130 135 140

Phe Ser Asp Phe Cys Glu Lys Ile Cys Glu Val Phe Met Asp Glu Phe

145 150 155 160
 Ser Val Tyr Gly Ser Ser Phe Asp Asp Cys Leu Ser Asn Pro Asp Arg
 165 170 175
 Val Leu Gln Arg Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
 180 185 190
 Cys His Phe Met Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
 195 200 205
 Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ala Ile Glu Lys
 210 215 220
 Met Pro Cys Pro Lys Asp Ile Lys Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240
 Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 88
 <211> 762
 <212> DNA
 <213> Triticum aestivum

<400> 88
 gtgcgtaagg aggttttcaa gttccttgag gcaggattta cttatcccgt tgcgtatagt 60
 gaatgggtaa gccctctcca ttgtgttcct aaaaaggag gtattaccgt tgttcttaat 120
 gataaagatg aattgatccc gcaaataatt attacagggt ataggatggt aattgatttc 180
 cataagttaa ataaagctac taagaaagat cattaccctt tacctcttat tgatcaaatt 240
 ctagaaagac tatccaaaca cacacatttc tgctttctag atgggttatac tgggtttctct 300
 caaatacctg tgtcagtgaa ggatcaatct aaaactactt ttacttgccc ttttggtact 360
 tttgcttata gacttatgcc ttttggttta tgtaatgcac ctacttcctt tcaaagatgc 420
 atgatggcta tattctctgt tttttgtgaa aatatttgtg aggtattcat ggatgatttc 480
 tccgtttatg gatcctcttt tgatgattgt ttgagcaacc ttgatcgagt tttgcagaga 540
 tgcaagaca ctagtctcat cctgaattgg gaaaagtgtc actttatggt taatgaaggc 600
 attgtcttgg ggcataagat ttccgagaga ggtattgaag ttgacaaagc caaagttgat 660
 gctattgaaa agattccatg tccaaggac ataaaaggta taagaagttt ccttggtcat 720
 gctggttttt ataggagggt catcaaagac ttctcaaagg tt 762

<210> 89
 <211> 254
 <212> PRT
 <213> Triticum aestivum

<400> 89

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Arg | Lys | Glu | Val | Phe | Lys | Phe | Leu | Glu | Ala | Gly | Ile | Thr | Tyr | Pro | 1 | 5 | 10 | 15 |
| Val | Ala | Asp | Ser | Glu | Trp | Val | Ser | Pro | Leu | His | Cys | Val | Pro | Lys | Lys | 20 | 25 | 30 | |
| Gly | Gly | Ile | Thr | Val | Val | Leu | Asn | Asp | Lys | Asp | Glu | Leu | Ile | Pro | Gln | 35 | 40 | 45 | |
| Ile | Ile | Ile | Thr | Gly | Tyr | Arg | Met | Val | Ile | Asp | Phe | His | Lys | Leu | Asn | 50 | 55 | 60 | |
| Lys | Ala | Thr | Lys | Lys | Asp | His | Tyr | Pro | Leu | Pro | Leu | Ile | Asp | Gln | Ile | 65 | 70 | 75 | 80 |
| Leu | Glu | Arg | Leu | Ser | Lys | His | Thr | His | Phe | Cys | Phe | Leu | Asp | Gly | Tyr | 85 | 90 | 95 | |
| Thr | Gly | Phe | Ser | Gln | Ile | Pro | Val | Ser | Val | Lys | Asp | Gln | Ser | Lys | Thr | 100 | 105 | 110 | |
| Thr | Phe | Thr | Cys | Pro | Phe | Gly | Thr | Phe | Ala | Tyr | Arg | Leu | Met | Pro | Phe | 115 | 120 | 125 | |
| Gly | Leu | Cys | Asn | Ala | Pro | Thr | Ser | Phe | Gln | Arg | Cys | Met | Met | Ala | Ile | 130 | 135 | 140 | |
| Phe | Ser | Val | Phe | Cys | Glu | Asn | Ile | Cys | Glu | Val | Phe | Met | Asp | Asp | Phe | 145 | 150 | 155 | 160 |
| Ser | Val | Tyr | Gly | Ser | Ser | Phe | Asp | Asp | Cys | Leu | Ser | Asn | Leu | Asp | Arg | 165 | 170 | 175 | |
| Val | Leu | Gln | Arg | Cys | Glu | Asp | Thr | Ser | Leu | Ile | Leu | Asn | Trp | Glu | Lys | 180 | 185 | 190 | |
| Cys | His | Phe | Met | Val | Asn | Glu | Gly | Ile | Val | Leu | Gly | His | Lys | Ile | Ser | 195 | 200 | 205 | |
| Glu | Arg | Gly | Ile | Glu | Val | Asp | Lys | Ala | Lys | Val | Asp | Ala | Ile | Glu | Lys | 210 | 215 | 220 | |
| Ile | Pro | Cys | Pro | Lys | Asp | Ile | Lys | Gly | Ile | Arg | Ser | Phe | Leu | Gly | His | 225 | 230 | 235 | 240 |
| Ala | Gly | Phe | Tyr | Arg | Arg | Phe | Ile | Lys | Asp | Phe | Ser | Lys | Val | 245 | 250 | | | | |

<210> 90
 <211> 791
 <212> DNA
 <213> Gossypium hirsutum

<400> 90
 gtgcgcaagg aggtttttaa gctacttgat gacgggatga tctatcccat atctaacagt 60
 aattgggtta gccagtaga catagtaga aaaaagacca gtgcaaccgt aatcgagaat 120
 tcggcaggtg agatagttcc cactcgggtc caaaacgggt ggagagtatg catcgattac 180
 aggaagttga attccttaac tcggaaggat cactttccac ttccttttat tgaccagatg 240
 ttagaacgtt tagctggaaa gtctcattat ttagaacgtt tagctggaaa gtctcattat 300
 tgttggttg atggttacta aggttttttc cagatcccag tggcaccgga ggatcaagaa 360
 agacaatgtt tacgtgcccc tttggcacgt tttcttacag acggatgccg ttcggactct 420
 gtaatgcacc agccagtttt cataggtgca tggtaagtat attttcagac tacgtcgata 480
 aaattatcga ggtgttcacg gacgacttta ctgtatatgg tgagtccttc gaggtaagtc 540
 tgacgaacct tgcaaaaatt ttggaaagat gcttagaatt taatcttggt ctaaattatg 600
 agaaatgcc ttttatggta gacaaggat tagttctagg tcatattatt tctgctgatg 660
 gaatttctgt tgataaagca aaaatcaaca tcattaactc actaccatac cccacaactg 720
 tgaggagat ttggtctttc cttggtcatg cagggtttta caagtgggtc atcaaagact 780
 tttcaaaagt t 791

<210> 91
 <211> 264
 <212> PRT
 <213> Gossypium hirsutum

<400> 91
 Val Arg Lys Glu Val Leu Lys Leu Leu Asp Asp Gly Met Ile Tyr Pro
 1 5 10 15
 Ile Ser Asn Ser Asn Trp Val Ser Pro Val His Ile Val Pro Lys Lys
 20 25 30
 Thr Ser Ala Thr Val Ile Glu Asn Ser Ala Gly Glu Ile Val Pro Thr
 35 40 45
 Arg Val Gln Asn Gly Trp Arg Val Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60
 Ser Leu Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
 65 70 75 80
 Leu Glu Arg Leu Ala Gly Lys Ser His Tyr Leu Glu Arg Leu Ala Gly
 85 90 95
 Lys Ser His Tyr Cys Cys Leu Asp Gly Tyr Glx Gly Phe Phe Gln Ile

100

105

110

Pro Val Ala Pro Glu Asp Gln Glu Lys Thr Met Phe Thr Cys Pro Phe
115 120 125

Gly Thr Phe Ser Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro
130 135 140

Ala Ser Phe His Arg Cys Met Val Ser Ile Phe Ser Asp Tyr Val Asp
145 150 155 160

Lys Ile Ile Glu Val Phe Met Asp Asp Phe Thr Val Tyr Gly Glu Ser
165 170 175

Phe Glu Val Ser Leu Thr Asn Leu Ala Lys Ile Leu Glu Arg Cys Leu
180 185 190

Glu Phe Asn Leu Val Leu Asn Tyr Glu Lys Cys His Phe Met Val Asp
195 200 205

Lys Gly Leu Val Leu Gly His Ile Ile Ser Ala Asp Gly Ile Ser Val
210 215 220

Asp Lys Ala Lys Ile Asn Ile Ile Asn Ser Leu Pro Tyr Pro Thr Thr
225 230 235 240

Val Arg Glu Ile Trp Ser Phe Leu Gly His Ala Gly Phe Tyr Lys Trp
245 250 255

Phe Ile Lys Asp Phe Ser Lys Val
260

<210> 92

<211> 763

<212> DNA

<213> Gossypium hirsutum

<400> 92

gtgcgtaaag aggtcgtaaa gctacttgat tccgggatga tctatcccat atctgacaat 60
aattgggtta gtccagtcca catagtaccc aaaaagaccg gtgtaaccgt aattgagaat 120
tcagcaggtg agatggttcc cacttaagtc cgaaacggtc ggagagtatg catcgattac 180
aggaagttga attccttaac tcggaaagat cactttccac ttctttttat tgatcagatg 240
ttagaacatt tagccagaaa gtctcattat tgttgtctgg atgggttactc aggttttttc 300
cagatcccaa tggcactaaa ggatcaagaa aagatgacat ttacgtgccc atttggcatg 360
ttcgcttata gaaggatgct gtttcagact ttgcaatgca ccaaccatgt ttcagaggtg 420
catgataagt atatTTTTTg actatgttaa gaaaataatt gaggtgttca tggacgaatt 480
tactgtatat agtgagtcct tcgaggtata tttgtcaaat ctagaaaaat ttttggaag 540

atgcttagaa tttaatcttg ttctaaatta tgagaattgc tattaatgg tagacaaggg 600
 attagttcta ggcatatca tttctgctaa gggaatttct gtcgataaag taaaaattaa 660
 catcataagc tcaataccat accccacaac tgtgagggag attcgttctt tccttagtca 720
 tataggtttc tataggcgat tcatcaagga cttttcaaaa gtt 763

<210> 93
 <211> 254
 <212> PRT
 <213> *Gossypium hirsutum*

<400> 93
 Val Arg Lys Glu Val Val Lys Leu Leu Asp Ser Gly Met Ile Tyr Pro
 1 5 10 15

Ile Ser Asp Asn Asn Trp Val Ser Pro Val His Ile Val Pro Lys Lys
 20 25 30

Thr Gly Val Thr Val Ile Glu Asn Ser Ala Gly Glu Met Val Pro Thr
 35 40 45

Glx Val Arg Asn Gly Arg Arg Val Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60

Ser Leu Thr Arg Lys Asp His Phe Pro Leu Leu Phe Ile Asp Gln Met
 65 70 75 80

Leu Glu His Leu Ala Arg Lys Ser His Tyr Cys Cys Leu Asp Gly Tyr
 85 90 95

Ser Gly Phe Phe Gln Ile Pro Met Ala Leu Lys Asp Gln Glu Lys Met
 100 105 110

Thr Phe Thr Cys Pro Phe Gly Met Phe Ala Tyr Arg Arg Met Ser Phe
 115 120 125

Arg Leu Cys Asn Ala Pro Thr Met Phe Gln Arg Cys Met Ile Ser Ile
 130 135 140

Phe Phe Asp Tyr Val Lys Lys Ile Ile Glu Val Phe Met Asp Glu Phe
 145 150 155 160

Thr Val Tyr Ser Glu Ser Phe Glu Val Tyr Leu Ser Asn Leu Glu Lys
 165 170 175

Phe Leu Glu Arg Cys Leu Glu Phe Asn Leu Val Leu Asn Tyr Glu Asn
 180 185 190

Cys Tyr Leu Met Val Asp Lys Gly Leu Val Leu Gly His Ile Ile Ser
 195 200 205

Ala Lys Gly Ile Ser Val Asp Lys Val Lys Ile Asn Ile Ile Ser Ser
 210 215 220

Ile Pro Tyr Pro Thr Thr Val Arg Glu Ile Arg Ser Phe Leu Ser His
 225 230 235 240

Ile Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Ser Lys Val
 245 250

<210> 94
 <211> 723
 <212> DNA
 <213> Gossypium hirsutum

<400> 94
 gtgcgtaagg aggttttgaa attgttggat gctggaatga tatactcgat ctttgacagt 60
 gattgggtta gctgggttca tgtcgtgccca aagaaaactg gcgtgacagt ggtgaaaaac 120
 tcatcaggag agctagtccc tacccgagtc cagaatcgat ggaggggttg catcgattac 180
 aggaagttga acgcagctac ccgaaatgac cattttccac ttcccttcat tgatcaaattg 240
 ctcgagcgat tagctaataa gaccattat tgttgtctcg atgggtactc aggacttttc 300
 caaattccgg tggcacctga ggatcaagac aaaacaactt tcacgtgccc ctttggaacg 360
 tttgcgtata gaagaatgtc gtttggtactc tgtaatgctc cggccacttt ccagagatgt 420
 atggtgagca tattctctga ttatgtcgag aaaatcattg aattcttcat ggatgacttc 480
 acggtgtacg gtaactcttt taacgaatgt ctcgataatc ttgctaagat attacagaga 540
 tgcctagaat ttaatcttgt tttaaattat gaaaaatgcc acttcatggt tgacaaagga 600
 ttaattttgg gtcatatagt ttcttcagaa ggtattgagg tcaataaagc aaaaacgaat 660
 attattgact cattacctta ccccagattt tacagacgat tcataaagga cttcacaaaa 720
 gtt 723

<210> 95
 <211> 241
 <212> PRT
 <213> Gossypium hirsutum

<400> 95
 Val Arg Lys Glu Val Leu Lys Leu Leu Asp Ala Gly Met Ile Tyr Ser
 1 5 10 15

Ile Phe Asp Ser Asp Trp Val Ser Trp Val His Val Val Pro Lys Lys
 20 25 30

Thr Gly Val Thr Val Val Lys Asn Ser Ser Gly Glu Leu Val Pro Thr
 35 40 45

Arg Val Gln Asn Arg Trp Arg Val Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Ala Ala Thr Arg Asn Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Asn Lys Thr His Tyr Cys Cys Leu Asp Gly Tyr
85 90 95

Ser Gly Leu Phe Gln Ile Pro Val Ala Pro Glu Asp Gln Asp Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Val Ser Ile
130 135 140

Phe Ser Asp Tyr Val Glu Lys Ile Ile Glu Phe Phe Met Asp Asp Phe
145 150 155 160

Thr Val Tyr Gly Asn Ser Phe Asn Glu Cys Leu Asp Asn Leu Ala Lys
165 170 175

Ile Leu Gln Arg Cys Leu Glu Phe Asn Leu Val Leu Asn Tyr Glu Lys
180 185 190

Cys His Phe Met Val Asp Lys Gly Leu Ile Leu Gly His Ile Val Ser
195 200 205

Ser Glu Gly Ile Glu Val Asn Lys Ala Lys Thr Asn Ile Ile Asp Ser
210 215 220

Leu Pro Tyr Pro Arg Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys
225 230 235 240

Val

<210> 96

<211> 762

<212> DNA

<213> Lycopersicon esculentum

<400> 96

gtgcggaaag aggttggtgaa gctgttagat acgggtattg tctagccaat ttcggacaac 60

aagtaggtta gtccagtaca atgtgaacct aaaaaggag acataacggt gatcactaat 120
gaaaaaaatg agttgatccc aaccatgata gtcacataat ggagaatatg catggattac 180
aggaaattga atgaagccac caggaaggac cattaccggt tcccttttat tgatcagatg 240
ttggaccggt tggctgggga ataataattat tgttttctta atggctatctt acggtacaac 300
caaattgtga tttcaccaaa ggattaagag aaaaccactt tcacttgccc gtatggtaca 360
tatgctttca aaaagatacc ttttgggtta tgaaatgcct cggctacttt ccaatgatgc 420
atgatggcta tttttcatga tatgggtgaa gattttgttg agatattcat gaatgatttc 480
tcagtgtttg gggattcttt tgatatgtgc ttggagaatt tggacagtgt gttggctagt 540
tgtgaagaaa ctaatctttt cctaaactgg gaataatagc aatttctagt aaaggaaggg 600
attatgctag gacataagggt gtcaaagaga ggtatggaag ttgatagtgc caaagtggag 660
gttattgaaa agcttcccccc tcctatatct gttaaaggga tgcaaagttt tctgggtcat 720
gttgggttct ataggagatt cataaaagac ttcacaaagg tt 762

<210> 97

<211> 254

<212> PRT

<213> *Lycopersicon esculentum*

<400> 97

Val Arg Lys Glu Val Val Lys Leu Leu Asp Thr Gly Ile Val Glx Pro
1 5 10 15

Ile Ser Asp Asn Lys Glx Val Ser Pro Val Gln Cys Glu Pro Lys Lys
20 25 30

Gly Asp Ile Thr Val Ile Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr
35 40 45

Met Ile Val Thr Glx Trp Arg Ile Cys Met Asp Tyr Arg Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Tyr Pro Val Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Asp Arg Leu Ala Gly Glu Glx Tyr Tyr Cys Phe Leu Asn Gly Tyr
85 90 95

Leu Arg Tyr Asn Gln Ile Val Ile Ser Pro Lys Asp Glx Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Phe Lys Lys Ile Pro Phe
115 120 125

Gly Leu Glx Asn Ala Ser Ala Thr Phe Gln Glx Cys Met Met Ala Ile
130 135 140

Phe His Asp Met Val Glu Asp Phe Val Glu Ile Phe Met Asn Asp Phe

145 150 155 160
 Ser Val Phe Gly Asp Ser Phe Asp Met Cys Leu Glu Asn Leu Asp Ser
 165 170 175
 Val Leu Ala Ser Cys Glu Glu Thr Asn Leu Phe Leu Asn Trp Glu Glx
 180 185 190
 Glx Gln Phe Leu Val Lys Glu Gly Ile Met Leu Gly His Lys Val Ser
 195 200 205
 Lys Arg Gly Met Glu Val Asp Ser Ala Lys Val Glu Val Ile Glu Lys
 210 215 220
 Leu Pro Pro Pro Ile Ser Val Lys Gly Met Gln Ser Phe Leu Gly His
 225 230 235 240
 Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 98
 <211> 689
 <212> DNA
 <213> *Lycopersicon esculentum*

<400> 98
 cgaaaggagg tgggtgaaact ggaaattatc aagtagttgg atgctagagt aatctatcca 60
 atcgccgata gtagttgggt atgcctagtt cagtgtgtac caaagaaagg gggaaatgact 120
 gtgggtccca acgaaaagaa tgaacttggt cgaatgagac cggttactgg atggagggtg 180
 tgcattggatt accgtaaact gaactcatag actgaaaaag actattttca tatgcccttc 240
 atggatcaga tgttggatag acttgccgga aaagggtggg attgttttct tgatgggtat 300
 tcgggggtata atcagatttc tattgcacca gaagatcaag agaaaaccac tttcacttgt 360
 ccatacgga cttttgcatt cagaagaatg tcgtttgggt tgtgcaatgc acccgcaacc 420
 tttcagagat ggatgatgtc aatattttct gacatgatgg aggatactat agagggtttt 480
 atggatgatt tttctgtggg tgggtgattca ttcgagcggg gcttgtccaa tttatctgag 540
 gttcttaaga gatgtgaaga ctgcaatttg gtactaaact gggaaaagtg tcatttcatg 600
 gtgaaagagg gtattgtgtt gggatcatcg atttcagaaa agggcatgca tgtttttact 660
 ggtgattcat caaagacttc acaaagggtt 689

<210> 99
 <211> 229
 <212> PRT
 <213> *Lycopersicon esculentum*

<400> 99
 Arg Lys Glu Val Val Lys Leu Glu Ile Ile Lys Glx Leu Asp Ala Arg

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Val Ile Tyr Pro Ile Ala Asp Ser Ser Trp Val Cys Leu Val Gln Cys | | | |
| 20 | 25 | 30 | |
| Val Pro Lys Lys Gly Gly Met Thr Val Val Pro Asn Glu Lys Asn Glu | | | |
| 35 | 40 | 45 | |
| Leu Val Arg Met Arg Pro Val Thr Gly Trp Arg Val Cys Met Asp Tyr | | | |
| 50 | 55 | 60 | |
| Arg Lys Leu Asn Ser Glx Thr Glu Lys Asp Tyr Phe His Met Pro Phe | | | |
| 65 | 70 | 75 | 80 |
| Met Asp Gln Met Leu Asp Arg Leu Ala Gly Lys Gly Trp Tyr Cys Phe | | | |
| 85 | 90 | 95 | |
| Leu Asp Gly Tyr Ser Gly Tyr Asn Gln Ile Ser Ile Ala Pro Glu Asp | | | |
| 100 | 105 | 110 | |
| Gln Glu Lys Thr Thr Phe Thr Cys Pro Tyr Gly Thr Phe Ala Phe Arg | | | |
| 115 | 120 | 125 | |
| Arg Met Ser Phe Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Trp | | | |
| 130 | 135 | 140 | |
| Met Met Ser Ile Phe Ser Asp Met Met Glu Asp Thr Ile Glu Val Phe | | | |
| 145 | 150 | 155 | 160 |
| Met Asp Asp Phe Ser Val Val Gly Asp Ser Phe Glu Arg Cys Leu Ser | | | |
| 165 | 170 | 175 | |
| Asn Leu Ser Glu Val Leu Lys Arg Cys Glu Asp Cys Asn Leu Val Leu | | | |
| 180 | 185 | 190 | |
| Asn Trp Glu Lys Cys His Phe Met Val Lys Glu Gly Ile Val Leu Gly | | | |
| 195 | 200 | 205 | |
| His Arg Ile Ser Glu Lys Gly Met His Val Phe Thr Gly Asp Ser Ser | | | |
| 210 | 215 | 220 | |
| Lys Thr Ser Gln Arg | | | |
| 225 | | | |

<210> 100

<211> 760

<212> DNA

<213> Lycopersicon esculentum

<400> 100

gtgcgtaagg aggtgttttaa gcttctagat gcgggtattg tctaccaat taggacaaca 60
agtgggtag tctagtacaa tgtgtaccta aaaagggagg catggcaatg attactaatg 120
aaaacaatga gtttatccca accagcacag tcacaagatg gcgaatatgc atgaattaca 180
cgaagttaat gaagccacta ggaagaatca ttaccaatt ctttttattg attatatgtt 240
ggaccggtta gctgggcaag aatattattg ttttttgat tactaatcag ggtacaacta 300
aattttgatt gcaccagagg atcaagagaa aacaactttc acttgcccgt atggtacata 360
tgctttcaag aggatacctt ttgggttatg caatgctctg tctaatttcc aaagatgcat 420
gatgactatt tttcatgata tggttgaata ttttgaggat atattcatgg atgatttctt 480
agtgttttg gagtcttttg atagatgctt ggagaatttg aacaggttgt tagctaggtg 540
cgaacaaaact aatcttgtcc tgaactggga aaaatgtcat tttttagtaa aggaagggaa 600
tttttcgggg cataaggtgt aaaagatagg gctggaagtt gatcatgaca aagtgggaagt 660
aattgaaaag atctcctctc ccatttttgt gaaacgggtg agaagtttac taggtcatgc 720
tgagttttac aggatattca tcaaggactt ctcaaaggtt 760

<210> 101

<211> 254

<212> PRT

<213> Lycopersicon esculentum

<400> 101

Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Ile Val Tyr Pro
1 5 10 15
Ile Ser Asp Asn Lys Trp Val Ser Leu Val Gln Cys Val Pro Lys Lys
20 25 30
Gly Gly Met Ala Met Ile Thr Asn Glu Asn Asn Glu Phe Ile Pro Thr
35 40 45
Ser Thr Val Thr Arg Trp Arg Ile Cys Met Asn Tyr Thr Lys Leu Asn
50 55 60
Glu Ala Thr Arg Lys Asn His Tyr Pro Ile Leu Phe Ile Asp Tyr Met
65 70 75 80
Leu Asp Arg Leu Ala Gly Gln Glu Tyr Tyr Cys Phe Leu Asp Tyr Glx
85 90 95
Ser Gly Tyr Asn Glx Ile Leu Ile Ala Pro Glu Asp Gln Glu Lys Thr
100 105 110
Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Phe Lys Arg Ile Pro Phe
115 120 125

Gly Leu Cys Asn Ala Leu Ser Asn Phe Gln Arg Cys Met Met Thr Ile
 130 135 140

Phe His Asp Met Val Glu Tyr Phe Glu Asp Ile Phe Met Asp Asp Phe
 145 150 155 160

Leu Val Phe Trp Glu Ser Phe Asp Arg Cys Leu Glu Asn Leu Asn Arg
 165 170 175

Leu Leu Ala Arg Cys Glu Gln Thr Asn Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Leu Val Lys Glu Gly Asn Phe Ser Gly His Lys Val Glx
 195 200 205

Lys Ile Gly Leu Glu Val Asp His Asp Lys Val Glu Val Ile Glu Lys
 210 215 220

Ile Ser Ser Pro Ile Phe Val Lys Arg Val Arg Ser Leu Leu Gly His
 225 230 235 240

Ala Glu Phe Tyr Arg Ile Phe Ile Lys Asp Phe Ser Lys Val
 245 250

<210> 102

<211> 776

<212> DNA

<213> Lycopersicon esculentum

<400> 102

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 cgatctccga tagtagttgg gtatgcccta ttcagtgtgt acctaagaaa gggggaatga 120
 ctgtggtccc caataagaaa aatgaacttg ttctaattgag accggttact ggagggtggg 180
 tgtgtatgga ttaccgtaaa ttaaattgcat ggactgaaaa agaccatttt cctatgccct 240
 tcatggatca gatgttggat agacttgccg aaaaagggtg gtactgtttt cttgatggat 300
 agtcagggtg taattagatt tctattgcac cagaagatca agagaaaacc acatttactt 360
 gtccatatgg gacctttgca ttgaagagaa tgcgttttg gttgtgcaat gcacccgcca 420
 catttcacag atgtaaaaaat gttgatattc ttcgacatgg tggatgatac tattgatgct 480
 tttatggatg atttttctct tgttggtgaa tcatcgaga ggtgtttgaa ccatttatct 540
 gatgtcctta agagatgtga agactgcaat ttagtactaa attgggaaaa atgccacttc 600
 atggtgaaaa aaggatttgt tttgggtcat cgcattccag aaaagggtcat agagggtgat 660
 cgagctaaag tagaggtaat agagagactt ccccccactat ctctgtaaaa ggtgtgagaa 720
 gctttcttgg gcatgcaagt ttttaccgga gattcatcaa agacttcaca aaagtt 776

<210> 103

<211> 258

<212> PRT

<213> Lycopersicon esculentum

<400> 103

Ala Glu Arg Ser Val Glx Thr Gly Ile Ile Lys Trp Leu Asp Ala Gly
1 5 10 15

Val Ile Tyr Pro Ile Ser Asp Ser Ser Trp Val Cys Pro Ile Gln Cys
20 25 30

Val Pro Lys Lys Gly Gly Met Thr Val Val Pro Asn Lys Lys Asn Glu
35 40 45

Leu Val Leu Met Arg Pro Val Thr Gly Gly Trp Val Cys Met Asp Tyr
50 55 60

Arg Lys Leu Asn Ala Trp Thr Glu Lys Asp His Phe Pro Met Pro Phe
65 70 75 80

Met Asp Gln Met Leu Asp Arg Leu Ala Glu Lys Gly Trp Tyr Cys Phe
85 90 95

Leu Asp Gly Glx Ser Gly Tyr Asn Glx Ile Ser Ile Ala Pro Glu Asp
100 105 110

Gln Glu Lys Thr Thr Phe Thr Cys Pro Tyr Gly Thr Phe Ala Leu Lys
115 120 125

Arg Met Ser Phe Gly Leu Cys Asn Ala Pro Ala Thr Phe His Arg Cys
130 135 140

Lys Met Leu Ile Phe Phe Asp Met Val Asp Asp Thr Ile Asp Ala Phe
145 150 155 160

Met Asp Asp Phe Ser Leu Val Gly Glu Ser Phe Glu Arg Cys Leu Asn
165 170 175

His Leu Ser Asp Val Leu Lys Arg Cys Glu Asp Cys Asn Leu Val Leu
180 185 190

Asn Trp Glu Lys Cys His Phe Met Val Lys Lys Gly Ile Val Leu Gly
195 200 205

His Arg Ile Pro Glu Lys Gly Ile Glu Val Asp Arg Ala Lys Val Glu
210 215 220

Val Ile Glu Arg Leu Pro Pro Pro Ile Ser Val Lys Gly Val Arg Ser
225 230 235 240

Phe Leu Gly His Ala Ser Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr
 245 250 255

Lys Val

<210> 104
 <211> 761
 <212> DNA
 <213> Solanum tuberosum

<400> 104
 gtgcggaagg aggtacttaa attggttgat gcacggattg tgtacccaat atcagacagt 60
 aaatgggtaa gtccagtaaa gtgtgtgccc aagaagggca gaatgacggt gttgactaat 120
 gagaagaatg aggtaatccc cacaagaaca gtgactgggt gacggatttg catggactac 180
 atgaagttga acgacgccac cagaaaggac cattatccgg tacctttcat tgataaaaata 240
 ttggataggt tggcaggaca tgagtactat tgttttcttg gtgtctactc aggggtacaat 300
 cagattgtta ttgcaataga ggactagggtg aaaaccacct tcacctgttc gtatggcaca 360
 tatgctgtca agcacatgcc attcggcttg tgcaatgccc tggccacatt tcagagatgc 420
 atgttggcaa tcttccatga tatggtggag gattttgttg aagttttcat ggatgacttc 480
 ttggtgtttg gtgagtcctt tgaactttgt ttgactaatt ttgacagatt tcttgctagg 540
 tgtgaagaga cgaatctggt gataaactga tagaagtgtc actttctggt tcgagaggga 600
 attgtgttgg gacacaagat ctccaaaaat gggctgaaag ttgacaaagc caacgtagag 660
 gttattgaga aattgccacc cccatcacag tgaaggtaat taaaagctta ctaggacatg 720
 cttgggttta tacgaggttc atcaaagact tcacaaaggt t 761

<210> 105
 <211> 254
 <212> PRT
 <213> Solanum tuberosum

<400> 105
 Val Arg Lys Glu Val Leu Lys Leu Leu Asp Ala Arg Ile Val Tyr Pro
 1 5 10 15
 Ile Ser Asp Ser Lys Trp Val Ser Pro Val Lys Cys Val Pro Lys Lys
 20 25 30
 Gly Arg Met Thr Val Leu Thr Asn Glu Lys Asn Glu Val Ile Pro Thr
 35 40 45
 Arg Thr Val Thr Gly Glx Arg Ile Cys Met Asp Tyr Met Lys Leu Asn
 50 55 60
 Asp Ala Thr Arg Lys Asp His Tyr Pro Val Pro Phe Ile Asp Lys Ile

| | | | |
|---|-----|-----|-----|
| 65 | 70 | 75 | 80 |
| Leu Asp Arg Leu Ala Gly His Glu Tyr Tyr Cys Phe Leu Gly Val Tyr | | | |
| 85 | 90 | 95 | |
| Ser Gly Tyr Asn Gln Ile Val Ile Ala Ile Glu Asp Glx Val Lys Thr | | | |
| 100 | 105 | 110 | |
| Thr Phe Thr Cys Ser Tyr Gly Thr Tyr Ala Phe Lys His Met Pro Phe | | | |
| 115 | 120 | 125 | |
| Gly Leu Cys Asn Ala Leu Ala Thr Phe Gln Arg Cys Met Leu Ala Ile | | | |
| 130 | 135 | 140 | |
| Phe His Asp Met Val Glu Asp Phe Val Glu Val Phe Met Asp Asp Phe | | | |
| 145 | 150 | 155 | 160 |
| Leu Val Phe Gly Glu Ser Phe Glu Leu Cys Leu Thr Asn Phe Asp Arg | | | |
| 165 | 170 | 175 | |
| Phe Leu Ala Arg Cys Glu Glu Thr Asn Leu Val Ile Asn Glx Glx Lys | | | |
| 180 | 185 | 190 | |
| Cys His Phe Leu Val Arg Glu Gly Ile Val Leu Gly His Lys Ile Ser | | | |
| 195 | 200 | 205 | |
| Lys Asn Gly Leu Lys Val Asp Lys Ala Asn Val Glu Val Ile Glu Lys | | | |
| 210 | 215 | 220 | |
| Leu Pro Pro Pro Ile Thr Val Lys Val Ile Lys Ser Leu Leu Gly His | | | |
| 225 | 230 | 235 | 240 |
| Ala Trp Phe Tyr Thr Arg Phe Ile Lys Asp Phe Thr Lys Val | | | |
| 245 | 250 | | |

<210> 106

<211> 760

<212> DNA

<213> Solanum tuberosum

<400> 106

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gtgcgtaaag aggttttcaa actgctagat gtcggtattg tatatccgat ttcagaaagc 60
aaatgggtca gccagtttta gtgtgtgcct aaaaaaagag gcatgccggt gatcaccaat 120
gaaaaaaatg agttgattcc aaccaggaca gtgacagggt ggccaatatg catggattat 180
aggaaattga atgaggccac cagaaaggat cactgcccgg ttccttttat tgatcagatg 240
ctggacaggt tagttgggca agaattattat tgtttcctgg aaggctattc aggatacaac 300
caaattgtga ttgcaccaga ggaccaggag aaaactacat tcacttgtct gtatggggaca 360

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tatgctttca agtgactgcc gtttgggcta tgcaatgctc cagccacctt ccaaagatga 420
atgatggcta tctttcatga tatggttgaa gattttgtgg agatattcat ggatgacttc 480
tcagtcttta gggagtcttt tgataggtgt ttggagaatt gggacagggg gctggctaga 540
tgcgaggaaa ctaatctcat cctaaactgg aaaaaatgtc atttcctagt aaatgaaggg 600
attgtattgg gccataaggt gtcaaagaga gggctggaag ttgatcgtgc caaagtggaa 660
gttattgaaa aactacctcc tccaatctgt taaaggggtg agaagctttc tgggtcatgc 720
tggtttttac aggagattta taaaggactt cacaaagggt 760

<210> 107

<211> 254

<212> PRT

<213> Solanum tuberosum

<400> 107

Val Arg Lys Glu Val Phe Lys Leu Leu Asp Val Gly Ile Val Tyr Pro
1 5 10 15

Ile Ser Glu Ser Lys Trp Val Ser Pro Val Glx Cys Val Pro Lys Lys
20 25 30

Arg Gly Met Pro Val Ile Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr
35 40 45

Arg Thr Val Thr Gly Trp Arg Ile Cys Met Asp Tyr Arg Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Cys Pro Val Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Asp Arg Leu Val Gly Gln Glu Tyr Tyr Cys Phe Leu Glu Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Val Ile Ala Pro Glu Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Leu Tyr Gly Thr Tyr Ala Phe Lys Glx Leu Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Glx Met Met Ala Ile
130 135 140

Phe His Asp Met Val Glu Asp Phe Val Glu Ile Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Arg Glu Ser Phe Asp Arg Cys Leu Glu Asn Trp Asp Arg
165 170 175

Val Leu Ala Arg Cys Glu Glu Thr Asn Leu Ile Leu Asn Trp Lys Lys
180 185 190

Cys His Phe Leu Val Asn Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Lys Arg Gly Leu Glu Val Asp Arg Ala Lys Val Glu Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Ile Ser Val Lys Gly Val Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 108
<211> 761
<212> DNA
<213> Solanum tuberosum

<400> 108
gtgcgtaaaag aggttttcaa gctctggatg caggtattgt ctatccaatt tcagacagca 60
agtgggtcag tccagttcag tgtgtgacct aaaagggagg catgacggtg atcactaatg 120
aaaaaatga gttgattcca accaggacag tgacaggatg gcgaatatgc atggattaca 180
gaaaattaaa tgaagctacc agaaaggatc actaccgggt tccttttatt gatcagatgc 240
tggacagggt ggctggacaa gaatattatt gtttcttgga tggttattca ggatacaacc 300
aaatagtgat tgcaccagag gaccagggga aaactacatt cacttgcttg tatgggacat 360
atgtttccaa gagaatgtcg tttgggctat gcaatgctcc atccattttc caaagatgca 420
tgatggccat cttccatgat aagggtgaag attttatgga aatattcatg gatgacttct 480
cagtatttgg ggagtctttt gacagggtgct tggagaattt agacagagtg ttggctagat 540
gcgaggaaac taattttgtc ctaaaactggg aaaaatgtca tttcctagtg aaggaagggga 600
ttgtgttggg tcataaggtg tcaaagagag ggctggaagt tgatcgtgcc agagtggaaa 660
taatcaaaaa gctacctccc ccaatttctg ttaaaggggt gcgaagtttt ttgggtcatg 720
ttagtttcta cgaaagattc ataaaggact tcaccaaggt t 761

<210> 109
<211> 254
<212> PRT
<213> Solanum tuberosum

<400> 109
Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Ile Val Tyr Pro
1 5 10 15

Ile Ser Asp Ser Lys Trp Val Ser Pro Val Gln Cys Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Ile Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr
 35 40 45

Arg Thr Val Thr Gly Trp Arg Ile Cys Met Asp Tyr Arg Lys Leu Asn
 50 55 60

Glu Ala Thr Arg Lys Asp His Tyr Pro Val Pro Phe Ile Asp Gln Met
 65 70 75 80

Leu Asp Arg Leu Ala Gly Gln Glu Tyr Tyr Cys Phe Leu Asp Gly Tyr
 85 90 95

Ser Gly Tyr Asn Gln Ile Val Ile Ala Pro Glu Asp Gln Gly Lys Thr
 100 105 110

Thr Phe Thr Cys Leu Tyr Gly Thr Tyr Val Ser Lys Arg Met Ser Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ser Ile Phe Gln Arg Cys Met Met Ala Ile
 130 135 140

Phe His Asp Lys Val Glu Asp Phe Met Glu Ile Phe Met Asp Asp Phe
 145 150 155 160

Ser Val Phe Gly Glu Ser Phe Asp Arg Cys Leu Glu Asn Leu Asp Arg
 165 170 175

Val Leu Ala Arg Cys Glu Glu Thr Asn Phe Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Leu Val Lys Glu Gly Ile Val Leu Gly His Lys Val Ser
 195 200 205

Lys Arg Gly Leu Glu Val Asp Arg Ala Arg Val Glu Ile Ile Lys Lys
 210 215 220

Leu Pro Pro Pro Ile Ser Val Lys Gly Val Arg Ser Phe Leu Gly His
 225 230 235 240

Val Ser Phe Tyr Glu Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 110

<211> 762

<212> DNA

<213> Solanum tuberosum

<400> 110

gtgcgtaagg aggtcctcaa gctgtctgat gcaggaattg tgtaccccat ttatgatata 60
aagtggatca gccagttca ctgtgtgccg aaaaagggag gcatgacgat tattactaat 120
gaaaagaagg agttgatttc agctagaacg gtgatagagt ggcacatatg aatggactat 180
aggagactaa atgaggcaac tagaaaggaa cactaccag ttcctttcat tgatcaaagt 240
ttggacaggt ttattgggca agagtattat tgtttcctag atggctattc aggatataat 300
caaattgtga ttgcgccata agataaagag aaaactacat ttacttctct atatgggaca 360
tatgccttca agagaatgtc gtttgggccg tgcaatgtc caaccacatt ccaaagatgc 420
atgacagcca tttttcatga tatgggtcaaa tattttgtgg agatattcat ggatgaattc 480
ttagtctttg gggagtcttt tgacacgtgt ctagaatatt tggacaatgt gcttgccaga 540
tgtgaggaaa ctaatcccg cctcaactgg gaaaaatgtc attttctagt gaagaagggg 600
attgtactag gccacaagg ttcagaggaa ggactggaag ttgatcgtgg aaaagtagag 660
gtaattttaa agctaccccc tcaagtcttc gttaaagggg tgagaagggt ccttggtcat 720
tctaggttcg aaatgagatt cataaaagac ttcacaaaag tt 762

<210> 111

<211> 254

<212> PRT

<213> Solanum tuberosum

<400> 111

Val Arg Lys Glu Val Leu Lys Leu Ser Asp Ala Gly Ile Val Tyr Pro
1 5 10 15
Ile Tyr Asp Ile Lys Trp Ile Ser Pro Val His Cys Val Pro Lys Lys
20 25 30
Gly Gly Met Thr Ile Ile Thr Asn Glu Lys Lys Glu Leu Ile Ser Ala
35 40 45
Arg Thr Val Ile Glu Trp His Ile Glx Met Asp Tyr Arg Arg Leu Asn
50 55 60
Glu Ala Thr Arg Lys Glu His Tyr Pro Val Pro Phe Ile Asp Gln Met
65 70 75 80
Leu Asp Arg Phe Ile Gly Gln Glu Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95
Ser Gly Tyr Asn Gln Ile Val Ile Ala Pro Glx Asp Lys Glu Lys Thr
100 105 110
Thr Phe Thr Ser Leu Tyr Gly Thr Tyr Ala Phe Lys Arg Met Ser Phe
115 120 125
Gly Pro Cys Asn Ala Pro Thr Thr Phe Gln Arg Cys Met Thr Ala Ile

130

135

140

Phe His Asp Met Val Lys Tyr Phe Val Glu Ile Phe Met Asp Glu Phe
145 150 155 160

Leu Val Phe Gly Glu Ser Phe Asp Thr Cys Leu Glu Tyr Leu Asp Asn
165 170 175

Val Leu Ala Arg Cys Glu Glu Thr Asn Pro Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Leu Val Lys Lys Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Glu Glu Gly Leu Glu Val Asp Arg Gly Lys Val Glu Val Ile Glx Lys
210 215 220

Leu Pro Pro Gln Val Phe Val Lys Gly Val Arg Arg Phe Leu Gly His
225 230 235 240

Ser Arg Phe Glu Met Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 112

<211> 762

<212> DNA

<213> Solanum tuberosum

<400> 112

gtgcggaagg aggtttttaa gctgctggat gcgggtattg tataccagat ttcagatagc 60
aaaggggtct acccgattta gtttgtgcct aaaaaatgca gcatgacagt gatcaccaat 120
gaaaagaatg agctgattcc aaccaggaca gtgacagggt ggcgaatatg catggattat 180
atgaagttag atgaggccac cagaaaggat cactaccga ttcattttat tgatcagatg 240
ttggacaagt tagctgagta aaaatattat tgtttcttgg cttgttattc aagatacaac 300
caattttctca ttgcaccaca ggaccaggag gaaactacat tcacttgtcc ttatgggaca 360
tatgctttca agcgaatgtc gtttgggcta tgcaatgctc caaccacott ccaaagatgc 420
ataagggcta tctttcatga tatggttgaa gattttgtgg agatattcat ggatgacttc 480
tcagtctttg ggtagtcttt tgagagggtg ctggaaaatt ttgacagggt gctggctgta 540
tgcgaggaaa ctaatttttt cctaaactgg gaaaaatgtc attttctagt gaaggaaggg 600
attgtattgg gacataaggt gtcaaagtga aggcttgaag ttgatcgtgc caaagtggaa 660
gtcgttgaaa acctaccttc cccattctct gttaaagggg tgagaagttt tttgggtcat 720
gctggtttct ataggagatt tatcaaagac ttcactaagg tt 762

<210> 113

<211> 254

<212> PRT

<213> Solanum tuberosum

<400> 113

Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Ile Val Tyr Gln
1 5 10 15

Ile Ser Asp Ser Lys Gly Val Tyr Pro Ile Glx Phe Val Pro Lys Lys
20 25 30

Cys Ser Met Thr Val Ile Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr
35 40 45

Arg Thr Val Thr Gly Trp Arg Ile Cys Met Asp Tyr Met Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Tyr Pro Ile His Phe Ile Asp Gln Met
65 70 75 80

Leu Asp Lys Leu Ala Glu Glx Lys Tyr Tyr Cys Phe Leu Ala Cys Tyr
85 90 95

Ser Arg Tyr Asn Gln Phe Leu Ile Ala Pro Gln Asp Gln Glu Glu Thr
100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Phe Lys Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Gln Arg Cys Ile Arg Ala Ile
130 135 140

Phe His Asp Met Val Glu Asp Phe Val Glu Ile Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Glx Ser Phe Glu Arg Cys Leu Glu Asn Phe Asp Arg
165 170 175

Val Leu Ala Val Cys Glu Glu Thr Asn Phe Phe Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Leu Val Lys Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Lys Glx Arg Leu Glu Val Asp Arg Ala Lys Val Glu Val Val Glu Asn
210 215 220

Leu Pro Ser Pro Phe Ser Val Lys Gly Val Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 114
<211> 793
<212> DNA
<213> Solanum tuberosum

<400> 114
aacttttgtg aagtctttaa tgaaggatgt tgtcagagaa gaagtcatca agtggctgga 60
tacagggatt gtgtacccaa tatctgacaa taaatgggca agtccagtgc agtgtgtgcc 120
taaaaaggga ggaatgacag ttgtgaccaa tgagaaaaat gagttgatcc ccacaagaac 180
agtaactggg tggaggctat gcatggacta cagaaaactc aatgaagcca ccaggaagga 240
ccactattcg gtaccgttca ttgatcaaat gttagacagg ttggctggcc aagagtatta 300
ctgtttcctt gatggttatt caaggtataa ttagatcgtc attgcacctg aggatcaaga 360
gaatacgaca ttcacttgcc catatggcac gtatgcattc aaacgcttgc cattcggctt 420
gtgcaatgcc ccaaccctat ttcagagatg tatgatggca atcttccatg atatggtgga 480
agattttggt aaagtataca tggacgattt ctcggtgttt ggtgagtcgt tcgaactttg 540
tttatctaata cgtgatagag ttcttactag gtgtgaggag accaatttgg tgctgaactg 600
ggagaagtgt cactttcttg tcagagaagg aattatgttg gggcagaaga tctccaaaag 660
tgggctagaa gtagacaagg cgaaggtgga agtgattgag aagttgccac caccaatata 720
agtaaaggga gtgcgaagct tccttggaac tgctggtttt tacaagaggt tcataaagga 780
cttttcaaag gtt 793

<210> 115
<211> 264
<212> PRT
<213> Solanum tuberosum

<400> 115
Thr Phe Val Lys Ser Leu Met Lys Asp Val Val Arg Glu Glu Val Ile
1 5 10 15
Lys Trp Leu Asp Thr Gly Ile Val Tyr Pro Ile Ser Asp Asn Lys Trp
20 25 30
Ala Ser Pro Val Gln Cys Val Pro Lys Lys Gly Gly Met Thr Val Val
35 40 45
Thr Asn Glu Lys Asn Glu Leu Ile Pro Thr Arg Thr Val Thr Gly Trp
50 55 60
Arg Leu Cys Met Asp Tyr Arg Lys Leu Asn Glu Ala Thr Arg Lys Asp
65 70 75 80
His Tyr Ser Val Pro Phe Ile Asp Gln Met Leu Asp Arg Leu Ala Gly

85

90

95

Gln Glu Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser Arg Tyr Asn Glx Ile
100 105 110

Val Ile Ala Pro Glu Asp Gln Glu Asn Thr Thr Phe Thr Cys Pro Tyr
115 120 125

Gly Thr Tyr Ala Phe Lys Arg Leu Pro Phe Gly Leu Cys Asn Ala Pro
130 135 140

Thr Leu Phe Gln Arg Cys Met Met Ala Ile Phe His Asp Met Val Glu
145 150 155 160

Asp Phe Val Lys Val Tyr Met Asp Asp Phe Ser Val Phe Gly Glu Ser
165 170 175

Phe Glu Leu Cys Leu Ser Asn Arg Asp Arg Val Leu Thr Arg Cys Glu
180 185 190

Glu Thr Asn Leu Val Leu Asn Trp Glu Lys Cys His Phe Leu Val Arg
195 200 205

Glu Gly Ile Met Leu Gly Gln Lys Ile Ser Lys Ser Gly Leu Glu Val
210 215 220

Asp Lys Ala Lys Val Glu Val Ile Glu Lys Leu Pro Pro Pro Ile Glx
225 230 235 240

Val Lys Gly Val Arg Ser Phe Leu Gly His Ala Gly Phe Tyr Lys Arg
245 250 255

Phe Ile Lys Asp Phe Ser Lys Val
260

<210> 116

<211> 761

<212> DNA

<213> *Platanus occidentalis*

<400> 116

gtgcgtaagg aggttttcaa acttcttaaa gtttgagtga tttatcctat ttaggatagg 60
aattgggtca gcccggttca agtggttcct aaaaagattg gaataaccgt tgtgaaaaat 120
tagaatgatg agttggttcc taccagtgtt cagaatgggt ggaggggttg atagattata 180
gaaaattgaa tggtgtaacc cgcaaggatc acttcccttt accttttatt gatcaaatgc 240
ttgaaagggt agttggtcat tcttactatt gtttcctaga tgggttattca agttatttcc 300
agattgtaat tactccagag gattaagaaa agacaacttt tacatgtcca tttgggactt 360

ttgcatatcg ttgcatgccc tttggccttt gcaatgcccc aaccactttc caaagggtga 420
 tgggttagcat attttcatat tacattgaga atatcataga agtttttatg gatgatttca 480
 tagtttatgg agactccttt aataattttc tgcataacct tacacttggt cttcaaagat 540
 gcatagaaac taaccttggtg ttaaattatg aaaaatgtca ttttatgggt gaacaaggta 600
 tagttttggg tcatgttatt tcatctaaag gaattgaggt agataaagct aaagttgata 660
 ttattcaatc tttaccttat ctcattagta tgcggaaagt tcattctttt cttggacatg 720
 caggtttcta ccgaagattc attaaagact ttacaaaggt t 761

<210> 117

<211> 254

<212> PRT

<213> *Platanus occidentalis*

<400> 117

Val Arg Lys Glu Val Phe Lys Leu Leu Lys Val Glx Val Ile Tyr Pro
 1 5 10 15

Ile Glx Asp Arg Asn Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
 20 25 30

Ile Gly Ile Thr Val Val Lys Asn Glx Asn Asp Glu Leu Val Pro Thr
 35 40 45

Ser Val Gln Asn Gly Trp Arg Val Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60

Val Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
 65 70 75 80

Leu Glu Arg Leu Val Gly His Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
 85 90 95

Ser Ser Tyr Phe Gln Ile Val Ile Thr Pro Glu Asp Glx Glu Lys Thr
 100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Cys Met Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Gln Arg Cys Met Val Ser Ile
 130 135 140

Phe Ser Tyr Tyr Ile Glu Asn Ile Ile Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Ile Val Tyr Gly Asp Ser Phe Asn Asn Phe Leu His Asn Leu Thr Leu
 165 170 175

Val Leu Gln Arg Cys Ile Glu Thr Asn Leu Val Leu Asn Tyr Glu Lys
180 185 190

Cys His Phe Met Val Glu Gln Gly Ile Val Leu Gly His Val Ile Ser
195 200 205

Ser Lys Gly Ile Glu Val Asp Lys Ala Lys Val Asp Ile Ile Gln Ser
210 215 220

Leu Pro Tyr Leu Ile Ser Met Arg Lys Val His Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 118
<211> 762
<212> DNA
<213> Platanus occidentalis

<400> 118
gtgcgtaagg aagttttcaa gcttccttgaa gttggagtga tttatcttat ttcgaatagc 60
aattgggtta gccagttca agtggtcct aaaaagactg gaataaccgt tgtgaaaaat 120
cagaatgatg agttagttcc tacccatggt cagaatgggt ggtgggtttg tataaattat 180
agaaaattaa atgttataac ctgcaaggat cacttcocctt taccttttat tgataaaatg 240
cttgaaaggt tagctggtca ttcttactat tgtttccttg atggttattt aggttatttt 300
caaattgcaa ttacttcgga ggatcaagaa aagatgattt ttaagtgcc attcgggact 360
tttgcatatc gtcacatgcc ctttggcctt tgcaatgccc caaccacttt ctaaagggtgt 420
atggttagca tattttcaga ttacattgag aatatcatag aagtctttat ggatgatttc 480
acagtttatg gagactcctt tgataattgt ctgcataacc ttacacttgt tattcaaaga 540
tgcatagaaa ctaacctagt gttaaattct taaaaatgtc attttatggt tgaacaagg 600
atagtttttg gtcatgttgt ttcattctagg ggaattgagg tagataaacc taaagttgat 660
attattcaaa ctttacctta ttccactagt gtgcgagaag ttcgttcttt tcttggacat 720
gtaggttttt actgaagatt cataaaagac ttcacaaagg tt 762

<210> 119
<211> 254
<212> PRT
<213> Platanus occidentalis

<400> 119
Val Arg Lys Glu Val Phe Lys Leu Leu Glu Val Gly Val Ile Tyr Leu
1 5 10 15

Ile Ser Asn Ser Asn Trp Val Ser Pro Val Gln Val Ala Pro Lys Lys
20 25 30

Thr Gly Ile Thr Val Val Lys Asn Gln Asn Asp Glu Leu Val Pro Thr
 35 40 45

His Val Gln Asn Gly Trp Trp Val Cys Ile Asn Tyr Arg Lys Leu Asn
 50 55 60

Val Ile Thr Cys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Lys Met
 65 70 75 80

Leu Glu Arg Leu Ala Gly His Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
 85 90 95

Leu Gly Tyr Phe Gln Ile Ala Ile Thr Ser Glu Asp Gln Glu Lys Met
 100 105 110

Ile Phe Lys Cys Pro Phe Gly Thr Phe Ala Tyr Arg His Met Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Glx Arg Cys Met Val Ser Ile
 130 135 140

Phe Ser Asp Tyr Ile Glu Asn Ile Ile Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Thr Val Tyr Gly Asp Ser Phe Asp Asn Cys Leu His Asn Leu Thr Leu
 165 170 175

Val Ile Gln Arg Cys Ile Glu Thr Asn Leu Val Leu Asn Ser Glx Lys
 180 185 190

Cys His Phe Met Val Glu Gln Gly Ile Val Leu Gly His Val Val Ser
 195 200 205

Ser Arg Gly Ile Glu Val Asp Lys Pro Lys Val Asp Ile Ile Gln Thr
 210 215 220

Leu Pro Tyr Ser Thr Ser Val Arg Glu Val Arg Ser Phe Leu Gly His
 225 230 235 240

Val Gly Phe Tyr Glx Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 120

<211> 759

<212> DNA

<213> Platanus occidentalis

<400> 120

gtgcggaaag aggtttttaa gcttttggat gtagggatta tataaccaat tttttatagt 60
aattaggtaa gtcccactca agtggaccca agaattctgg tgtgactgta gttaaaaatg 120
caaatgatga attgattcca aatagactca ctattggttg gcgtgtatgc attaactata 180
agaagttgaa ctcagtgact aggaaggacc atttcccttt accattcatg actaaatcct 240
agaaagggta gctggtcaca aattttatta tttcctatat gggtattcta gatataacta 300
aatagagatt gcacctgagg actaagaaaa taccactttt acatgtccat ttggcacttt 360
tgcttatcga aggatgtcat ttggattatg taatgctctt gccacgttct aaagatgcat 420
gttgagtata tttagtata tggtagaaca ttttcttgag gtgtttatgg attttttttg 480
tttttggtaa ttcatttgat gattgtttgc ataatttgaa aaaagtgtta aatagatgtg 540
aaggaaaaaa acatcatttt gaattgagag aagtgtcatt tcatgggtctc taaaagaatt 600
gtacttggtc acattgtctc ctcccaagga attaaagtgg tcaaagccaa aattgaattg 660
atagtcaatt tgcctagccc aaagactctt aaagacattc gatcttttct aggtcatgca 720
ggatttaaca aaagggttcat caaagacttc acgaaagtt 759

<210> 121

<211> 254

<212> PRT

<213> *Platanus occidentalis*

<400> 121

Val Arg Lys Glu Val Phe Lys Leu Leu Asp Val Gly Ile Ile Tyr Pro
1 5 10 15

Ile Phe Tyr Ser Asn Glx Val Ser Pro Thr Gln Val Val Pro Lys Asn
20 25 30

Ser Gly Val Thr Val Val Lys Asn Ala Asn Asp Glu Leu Ile Pro Asn
35 40 45

Arg Leu Thr Ile Gly Trp Arg Val Cys Ile Asn Tyr Lys Lys Leu Asn
50 55 60

Ser Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Glx Ile
65 70 75 80

Leu Glu Arg Val Ala Gly His Lys Phe Tyr Tyr Phe Leu Tyr Gly Tyr
85 90 95

Ser Arg Tyr Asn Glx Ile Glu Ile Ala Pro Glu Asp Glx Glu Asn Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Thr Phe Ala Tyr Arg Arg Met Ser Phe
115 120 125

Gly Leu Cys Asn Ala Leu Ala Thr Phe Glx Arg Cys Met Leu Ser Ile

130

135

140

Phe Ser Asp Met Val Glu His Phe Leu Glu Val Phe Met Asp Asp Phe
145 150 155 160

Phe Val Phe Gly Asn Ser Phe Asp Asp Cys Leu His Asn Leu Lys Lys
165 170 175

Val Leu Asn Arg Cys Glu Glu Lys Asn Ile Ile Leu Asn Glx Glu Lys
180 185 190

Cys His Phe Met Val Ser Lys Arg Ile Val Leu Gly His Ile Val Ser
195 200 205

Ser Gln Gly Ile Lys Val Val Lys Ala Lys Ile Glu Leu Ile Val Asn
210 215 220

Leu Pro Ser Pro Lys Thr Leu Lys Asp Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Asn Lys Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 122

<211> 761

<212> DNA

<213> Platanus occidentalis

<400> 122

tgcgtaaaaga ggtggtcaag cttcttgaag ttggagtgat ttatcctatt tcggatagca 60
attggggttag cccggttcaa gtggttccta aaaagactgg aataaccgtt gtgaaaaatc 120
aaaaatgatga gttagtctct acccgtgttc agaatgggtg gcaggtttgt atagattata 180
taaaattaaa tggtgtaacc cgcaaggatc acttcccttt accttttatt gatcaaattgt 240
ttgaaagggtt agctgggtcat tcttactatt gtttccttga tggatattca tgttattttt 300
agattgcaat tactccagag gatcaagaaa agacgacttt tacgtgcccc ttcgggactt 360
tttcatatcg ttgcatgccc tttggccttt gcaacgcccc agccactttc caaagggtgta 420
tggttagcat attttcagat tacattgaga atatcataga agtctttatg gatgatttca 480
tagtttatga agactccttt gataattgtc tgcataacct tacacttggt ttttaaagat 540
gcatagaaac taaccttgtg ttaaattttg aaaaatgtca tgttatgggt gaataaggta 600
tagttttggg tcatgttggt tcatctatgg gaattgaggt agataaagtt aaagttgata 660
ttattcaatc tttaccttat cccattagtg tgcaggaagt tcgttctttt cttggacatg 720
cgggttttta ccaaagattc attaaagact tcacgaaagt t 761

<210> 123

<211> 253

<212> PRT

<213> Platanus occidentalis

<400> 123

Arg Lys Glu Val Val Lys Leu Leu Glu Val Gly Val Ile Tyr Pro Ile
1 5 10 15

Ser Asp Ser Asn Trp Val Ser Pro Val Gln Val Val Pro Lys Lys Thr
20 25 30

Gly Ile Thr Val Val Lys Asn Gln Asn Asp Glu Leu Val Pro Thr Arg
35 40 45

Val Gln Asn Gly Trp Gln Val Cys Ile Asp Tyr Ile Lys Leu Asn Val
50 55 60

Val Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met Phe
65 70 75 80

Glu Arg Leu Ala Gly His Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser
85 90 95

Cys Tyr Phe Glx Ile Ala Ile Thr Pro Glu Asp Gln Glu Lys Thr Thr
100 105 110

Phe Thr Cys Pro Phe Gly Thr Phe Ser Tyr Arg Cys Met Pro Phe Gly
115 120 125

Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Val Ser Ile Phe
130 135 140

Ser Asp Tyr Ile Glu Asn Ile Ile Glu Val Phe Met Asp Asp Phe Ile
145 150 155 160

Val Tyr Glu Asp Ser Phe Asp Asn Cys Leu His Asn Leu Thr Leu Val
165 170 175

Phe Glx Arg Cys Ile Glu Thr Asn Leu Val Leu Asn Phe Glu Lys Cys
180 185 190

His Val Met Val Glu Glx Gly Ile Val Leu Gly His Val Val Ser Ser
195 200 205

Met Gly Ile Glu Val Asp Lys Val Lys Val Asp Ile Ile Gln Ser Leu
210 215 220

Pro Tyr Pro Ile Ser Val Gln Glu Val Arg Ser Phe Leu Gly His Ala
225 230 235 240

Gly Phe Tyr Gln Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 124
 <211> 761
 <212> DNA
 <213> Sorghum bicolor

<400> 124
 gtgcgtaaag aggtcttcaa gctctatcat gctgggatta tttatcctgt gccgcatagt 60
 gagtgggtta gccctgttca agtagtgcca aagaaaggag gaatgacggt cgtaggaat 120
 gagaagaatg aactcatccc tcaacgaatt gtcactgggt ggcgtatgtg tattgactat 180
 caaaaactca acacggctac aaagaaagat aactttccgt tacccttcat tgatgaaatg 240
 ttggaacggc ttgcaaacca ctctttcttc tgtttccttg atggttattc tggatatcac 300
 caaatcccaa tccaccacaga tgaccaagaa aagactacct ttacatgccc gtatggaact 360
 tatgcataac gacgaatgtc gttcggactg tgcaatgctc cagcttcttt ccaacggtgc 420
 atgatgtcta ttttctcgga catgattgag aagatcatgg aggttttcat ggatgatttt 480
 accgtctatg gtaaaacctt cgatcattgt ttggagaatt tagatagagt cttgcagcga 540
 tgtgaagaaa agcacttaat cctgaactgg gagaaatgcc attttatggt tcaggaagga 600
 atagtgctag gacataaagt gtccgaacgt ggtatagagg tggacaaagc aaagattgaa 660
 gttattgaaa aacttccacc tcccacgaat gtgaaaggat ccgtagcttc ttgggacatg 720
 cagggttcta tagatgcttc ataaaagact tcacaaaggt t 761

<210> 125
 <211> 254
 <212> PRT
 <213> Sorghum bicolor

<400> 125
 Val Arg Lys Glu Val Phe Lys Leu Tyr His Ala Gly Ile Ile Tyr Pro
 1 5 10 15

Val Pro His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
 20 25 30

Gly Gly Met Thr Val Val Arg Asn Glu Lys Asn Glu Leu Ile Pro Gln
 35 40 45

Arg Ile Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Gln Lys Leu Asn
 50 55 60

Thr Ala Thr Lys Lys Asp Asn Phe Pro Leu Pro Phe Ile Asp Glu Met
 65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr
 85 90 95

Ser Gly Tyr His Gln Ile Pro Ile His Pro Asp Asp Gln Glu Lys Thr
 100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Glx Arg Arg Met Ser Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
 130 135 140

Phe Ser Asp Met Ile Glu Lys Ile Met Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Thr Val Tyr Gly Lys Thr Phe Asp His Cys Leu Glu Asn Leu Asp Arg
 165 170 175

Val Leu Gln Arg Cys Glu Glu Lys His Leu Ile Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Val Ser
 195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Glu Val Ile Glu Lys
 210 215 220

Leu Pro Pro Pro Thr Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Cys Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 126

<211> 762

<212> DNA

<213> Sorghum bicolor

<400> 126

gtgcggaagg aggtccttaa attgctgcat gcagggatta tatatcctgt gccgcacagt 60
 gagtgggtga gccagtaga agttgtgcct aaaaaaggag gcatgactgt tattataaat 120
 gaaaagaacg agctaattcc gcaacgcacc gtcacaggat gccagatgtg catagactat 180
 agaaaactaa acaaagccac gagaaaggat cactttcctt taccttttat agatgagatg 240
 ctagagcggg tagcaaacca ttcgttcttc tgtttcttag atggatattc agggatatcat 300
 cagatcccga tccatcccga tgatcaaaagc aaaaccactt ttacatgccc ttatggaact 360
 tatgcttacc gtagaatgtc ttttgggtta tgtaatgcac cagcttcttt tcaaagatgc 420
 atgatgtcta tattttctga tatgattgaa gagattatgg aagttttcat ggatgatttc 480
 tctgtttatg gaaaagcttt tgatagttgt cttgaaaact tagacaagg tttgcaaagt 540
 tgtgaagaaa agcacttaat ccttaattgg gaaaaatgtc attttatggg tagggaagga 600

atagtgctag gacacttagt gtctgaaagg ggtattgagg tagacaaagc tgaaattgaa 660
gtaattgaac aactacctcc acctgtgaat ataaaaggaa ttcgaagctt tcttggccat 720
gctgggttttt atcgtagatt catcaaagat ttcacgaaag tt 762

<210> 127

<211> 254

<212> PRT

<213> Sorghum bicolor

<400> 127

Val Arg Lys Glu Val Leu Lys Leu Leu His Ala Gly Ile Ile Tyr Pro

1 5 10 15

Val Pro His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys

20 25 30

Gly Gly Met Thr Val Ile Ile Asn Glu Lys Asn Glu Leu Ile Pro Gln

35 40 45

Arg Thr Val Thr Gly Trp Gln Met Cys Ile Asp Tyr Arg Lys Leu Asn

50 55 60

Lys Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met

65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr

85 90 95

Ser Gly Tyr His Gln Ile Pro Ile His Pro Asp Asp Gln Ser Lys Thr

100 105 110

Thr Phe Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe

115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile

130 135 140

Phe Ser Asp Met Ile Glu Glu Ile Met Glu Val Phe Met Asp Asp Phe

145 150 155 160

Ser Val Tyr Gly Lys Ala Phe Asp Ser Cys Leu Glu Asn Leu Asp Lys

165 170 175

Val Leu Gln Ser Cys Glu Glu Lys His Leu Ile Leu Asn Trp Glu Lys

180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Leu Val Ser

195

200

205

Glu Arg Gly Ile Glu Val Asp Lys Ala Glu Ile Glu Val Ile Glu Gln
 210 215 220

Leu Pro Pro Pro Val Asn Ile Lys Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 128

<211> 762

<212> DNA

<213> Sorghum bicolor

<400> 128

gtgcggaagg aagtcttaaa gcttttacac actaggatta tttatctcgt tcctcatagt 60
 gagtgggtta gcacggtaca agttgtgcca aagaaaggag gaatgtcggg tgtaggaat 120
 gagaagaacg aattcatccc tcaacaaact gtcactgggt ggcgatgtg cattgactac 180
 caaaaactca acaaggccac aaggaaagat cacttcccgt tacctttcat tgatgaaatg 240
 ttgtaatggc ttacaaatca ctcgttcttt tgtttccttg aagggtattc cagatatcat 300
 caaatcccga tccaccacga tgaccaaaagt aagactactt tcacatgacc ctatggaact 360
 tacgcatacc gacgaatgtc gttcagggtta tgtaatgctc cagcttcttt tcaacgggtgc 420
 atgatgtcta ttttttccaa tatgattgag aaaatcatgg aggtattcac ggatgatttt 480
 accgtatatg gcaaaacctt tgatgattgt ttagagaatt tggacaaagt cttacaattg 540
 tgtgaaggaa agcacttaat cgtaaaactag gagaaatgcc attttatggg ccgagaagga 600
 atagtgttag ggacacaagg gtccgaacgt gggatagagg tggatagagc caagattgaa 660
 gttattgaaa aacttcacc tcccacaaat gtgaaagaca tccgcagttt tcttggacat 720
 gcagggttct ataggcgctt catcaaagat ttcaccaagg tt 762

<210> 129

<211> 254

<212> PRT

<213> Sorghum bicolor

<400> 129

Val Arg Lys Glu Val Leu Lys Leu Leu His Thr Arg Ile Ile Tyr Leu
 1 5 10 15

Val Pro His Ser Glu Trp Val Ser Thr Val Gln Val Val Pro Lys Lys
 20 25 30

Gly Gly Met Ser Val Val Arg Asn Glu Lys Asn Glu Phe Ile Pro Gln
 35 40 45

Gln Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Gln Lys Leu Asn
50 55 60

Lys Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
65 70 75 80

Leu Glx Trp Leu Thr Asn His Ser Phe Phe Cys Phe Leu Glu Gly Tyr
85 90 95

Ser Arg Tyr His Gln Ile Pro Ile His His Asp Asp Gln Ser Lys Thr
100 105 110

Thr Phe Thr Glx Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe
115 120 125

Arg Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Ile
130 135 140

Phe Ser Asn Met Ile Glu Lys Ile Met Glu Val Phe Thr Asp Asp Phe
145 150 155 160

Thr Val Tyr Gly Lys Thr Phe Asp Asp Cys Leu Glu Asn Leu Asp Lys
165 170 175

Val Leu Gln Leu Cys Glu Gly Lys His Leu Ile Val Asn Glx Glu Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Glu Arg Gly Ile Glu Val Asp Arg Ala Lys Ile Glu Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Thr Asn Val Lys Asp Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 130

<211> 761

<212> DNA

<213> Sorghum bicolor

<400> 130

gtgcgtaagg aggttttttaa gctgctgcat gcagagatta tatatcatgt gccgcacagt 60
gagtgggtaa gccagttca agttgtgcct aaaaaggag gcatgattgt tgttacgaat 120

gaaaagaacg agctaattcc gcaacgcacc gtcacagggt ggcggatgtg catagactat 180
 agaaaactaa acaaagccac gagaaaggat cattttcctt tacctttcat agatgagatg 240
 ctagagcgat tagcaaacca ttcgtttcttc tgtttcttag atggataatt aggggtatcac 300
 cagatcccaa tcaatcttga tgatcaaagc aaaaccactt ttccatgccc acatggaact 360
 tatgcttacc gtagaatgtc ttttgggtta tgtaatgcac cagcttcttt tcaaagatgc 420
 atgatgtctg tattttctaa tatgattgaa gagattatgg aattttcatg gatgatttct 480
 ctgtttatgg aaaaactttt gatagttgtc ttgaaaactt agacagggtt ttgcaaagat 540
 gtgaagaaaa gtacttagtc cttaattgga aaaaatgtca ttttatgggt aggggaaggaa 600
 tagtgctggg acacctagtg tctgaaagag gtattgaggt cgacaaagct aaaattgaag 660
 taattgaaca actacctcca cctttgaata taaaaggaa tcgaagcttt cttggccatg 720
 ctgggttttta tcgtagattc attaaggact ttacaaagggt t 761

<210> 131

<211> 254

<212> PRT

<213> Sorghum bicolor

<400> 131

Val Arg Lys Glu Val Phe Lys Leu Leu His Ala Glu Ile Ile Tyr His
 1 5 10 15

Val Pro His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
 20 25 30

Gly Gly Met Ile Val Val Thr Asn Glu Lys Asn Glu Leu Ile Pro Gln
 35 40 45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60

Lys Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met
 65 70 75 80

Leu Glu Arg Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Glx
 85 90 95

Leu Gly Tyr His Gln Ile Pro Ile Asn Leu Asp Asp Gln Ser Lys Thr
 100 105 110

Thr Phe Pro Cys Pro His Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Ser Phe Gln Arg Cys Met Met Ser Val
 130 135 140

Phe Ser Asn Met Ile Glu Glu Ile Met Glu Ile Phe Met Asp Asp Phe
 145 150 155 160

Ser Val Tyr Gly Lys Thr Phe Asp Ser Cys Leu Glu Asn Leu Asp Arg
 165 170 175

Val Leu Gln Arg Cys Glu Glu Lys Tyr Leu Val Leu Asn Trp Lys Lys
 180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Leu Val Ser
 195 200 205

Glu Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Glu Val Ile Glu Gln
 210 215 220

Leu Pro Pro Pro Leu Asn Ile Lys Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 132

<211> 763

<212> DNA

<213> Sorghum bicolor

<400> 132

gtgcggaaaag aggtcgtcaa gctctatcat gctgggatta tttatcctgt gccacatagt 60
 gagtgggtta gccctgttca agtagtgcca aagaaagaag gaatgacggt cgttaggaat 120
 gagaagaatg aactcatccc tcaacaaatt gtcactagat ggcgtatgtg tattgactat 180
 cgaaaactca acaaagctac aaagaaagat cactttccgt tacccttcat tgatgaaatg 240
 ttggaatggc ttgcaaacca ctctttcttc tgtttccttg atggttattc tggatatcac 300
 caaatcccaa tccacccaga tgaccaagaa aagactacct ttacatgccc gtattgaact 360
 tatgcatact gacgaatgtc gttcggattg tgcaatgctc tagcttcttt tccagcgggtg 420
 catgatgtct attttctcgg acatgattga gaagatcatg gaggttttca tggatgattt 480
 taccgtctat ggcaaaacct tcgatcattg tttggagaat ttagatagag tcttgcagcg 540
 atgtgaggaa aatcacttaa tcttgaactg ggagaaatgt cattttatgg ttcaggaagg 600
 aatagtgcta ggacataaag tgtccgaacg tggtatagat gtggacaaaag caaagattaa 660
 agttattgaa aaacttcac ctcacacgaa tgtgaaagga atccatagct ttttgggaca 720
 tgcagggttc tatagacgct tcatcaagga tttcacaaaag gtt 763

<210> 133

<211> 254

<212> PRT

<213> Sorghum bicolor

<400> 133

Val Arg Lys Glu Val Val Lys Leu Tyr His Ala Gly Ile Ile Tyr Pro

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Val Pro His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys | | | |
| 20 | 25 | 30 | |
| Glu Gly Met Thr Val Val Arg Asn Glu Lys Asn Glu Leu Ile Pro Gln | | | |
| 35 | 40 | 45 | |
| Gln Ile Val Thr Arg Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn | | | |
| 50 | 55 | 60 | |
| Lys Ala Thr Lys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met | | | |
| 65 | 70 | 75 | 80 |
| Leu Glu Trp Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr | | | |
| 85 | 90 | 95 | |
| Ser Gly Tyr His Gln Ile Pro Ile His Pro Asp Asp Gln Glu Lys Thr | | | |
| 100 | 105 | 110 | |
| Thr Phe Thr Cys Pro Tyr Glx Thr Tyr Ala Tyr Glx Arg Met Ser Phe | | | |
| 115 | 120 | 125 | |
| Gly Leu Cys Asn Ala Leu Ala Ser Phe Gln Arg Cys Met Met Ser Ile | | | |
| 130 | 135 | 140 | |
| Phe Ser Asp Met Ile Glu Lys Ile Met Glu Val Phe Met Asp Asp Phe | | | |
| 145 | 150 | 155 | 160 |
| Thr Val Tyr Gly Lys Thr Phe Asp His Cys Leu Glu Asn Leu Asp Arg | | | |
| 165 | 170 | 175 | |
| Val Leu Gln Arg Cys Glu Glu Asn His Leu Ile Leu Asn Trp Glu Lys | | | |
| 180 | 185 | 190 | |
| Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Val Ser | | | |
| 195 | 200 | 205 | |
| Glu Arg Gly Ile Asp Val Asp Lys Ala Lys Ile Lys Val Ile Glu Lys | | | |
| 210 | 215 | 220 | |
| Leu Pro Pro His Thr Asn Val Lys Gly Ile His Ser Phe Leu Gly His | | | |
| 225 | 230 | 235 | 240 |
| Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val | | | |
| 245 | 250 | | |

<210> 134
 <211> 756
 <212> DNA
 <213> Sorghum bicolor

<400> 134
 aaggaggttt tcaagttgct gcatgcaggg attatatatc ttgtgccgca tagtgagtgg 60
 gtaagcccag ttcaagttgt gcctaaaaag ggaggcatga ctattattat gaatgaaaag 120
 aacgagctaa ttccgcaacg caccgttaca gtatggcgga tgtgcataga ctatagaaaa 180
 ctaaacaaaag ccacgagaga ggatcacttt cctttacctt tcatagatga gatgctagag 240
 tggttagcaa accattcggt cttctgtttc ttagatggat attgagggta tcatcagatc 300
 ccgatccatc ccgatgatca aagcaaaacc acttttacat gcccatatgg aacttatgct 360
 taccgtagaa tgtcttttgg gttatgtaat gcatagctt cttttcaaag atgcatgatg 420
 tctatatatt ctgatatgat tgaagagatt atggaagttt tcatggatga tttctctggt 480
 tatggaaaaa cttttgatag ttgtcttaaa aacttagaca aggttttgca aagatgtgaa 540
 gaaaagcact tagtccttaa ttgggaaaaa tgtcatttca tggttaggga aggaatagtg 600
 ctgggacact tagtgtctga aagagctatt gaggtagata aagctaaaat tgaagtaatt 660
 gaacaactac gtccacctgt gaacataaaa ggaatttgaa gctttcttgg ccatgctggt 720
 tttcatcgta gattcataaa agactttaca aagggtt 756

<210> 135
 <211> 252
 <212> PRT
 <213> Sorghum bicolor

<400> 135
 Lys Glu Val Phe Lys Leu Leu His Ala Gly Ile Ile Tyr Leu Val Pro
 1 5 10 15
 His Ser Glu Trp Val Ser Pro Val Gln Val Val Pro Lys Lys Gly Gly
 20 25 30
 Met Thr Ile Ile Met Asn Glu Lys Asn Glu Leu Ile Pro Gln Arg Thr
 35 40 45
 Val Thr Val Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn Lys Ala
 50 55 60
 Thr Arg Glu Asp His Phe Pro Leu Pro Phe Ile Asp Glu Met Leu Glu
 65 70 75 80
 Trp Leu Ala Asn His Ser Phe Phe Cys Phe Leu Asp Gly Tyr Glx Gly
 85 90 95
 Tyr His Gln Ile Pro Ile His Pro Asp Asp Gln Ser Lys Thr Thr Phe
 100 105 110

Thr Cys Pro Tyr Gly Thr Tyr Ala Tyr Arg Arg Met Ser Phe Gly Leu
 115 120 125

Cys Asn Ala Leu Ala Ser Phe Gln Arg Cys Met Met Ser Ile Phe Ser
 130 135 140

Asp Met Ile Glu Glu Ile Met Glu Val Phe Met Asp Asp Phe Ser Val
 145 150 155 160

Tyr Gly Lys Thr Phe Asp Ser Cys Leu Lys Asn Leu Asp Lys Val Leu
 165 170 175

Gln Arg Cys Glu Glu Lys His Leu Val Leu Asn Trp Glu Lys Cys His
 180 185 190

Phe Met Val Arg Glu Gly Ile Val Leu Gly His Leu Val Ser Glu Arg
 195 200 205

Ala Ile Glu Val Asp Lys Ala Lys Ile Glu Val Ile Glu Gln Leu Arg
 210 215 220

Pro Pro Val Asn Ile Lys Gly Ile Glx Ser Phe Leu Gly His Ala Gly
 225 230 235 240

Phe His Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 136

<211> 762

<212> DNA

<213> Glycine max

<400> 136

gtgcgtaagg aggttgtaa gcttttggag gttgggctca tatacctcat ctctgacagc 60
 gcttgggtaa gcctagtaca ggtgggctccc aagaaatgcg gaatgacagt ggtacaaaat 120
 gagaggaatg acttgatacc aacacgaact gtcactggct agcggatgtg tatcgactac 180
 tgcaagttga atgaagccac acggaaggac catttcccct tacctttcat ggatcagatg 240
 ctggagaggc ttgcagggca ggcatactac tgtttcttgg atagatattc aggatacaac 300
 caaatcgcg tagaccccag agatcaggag aagatggcct ttacatgccc ctttggcgctc 360
 tttgcttaca gaaggatgtc attcagggtta tgtaacgcac cagccacatt tcagaggtgc 420
 gtgctggcca ttttttcaga catggtggag aagagcatcg aggtatttat ggatgaattc 480
 tcgatttttg gacccttatt tgacagttgc ttaaggaact tagagatggg actacagagg 540
 tgcgtataga ctaacttggt actaaattag gaaaaatgtc atttcatggg tcgagagggga 600
 atagtgatgg accacaatat ctcagctaga gggattgagg ttgatcaggc aaagatagac 660
 gtcattgaga agttgccacc accactgaat gttaaaggcg tcagaagttt cttagggcat 720
 gcaggtttct acaggaggtt tatcaaggac ttcaccaagg tt 762

<210> 137

<211> 254

<212> PRT

<213> Glycine max

<400> 137

Val Arg Lys Glu Val Val Lys Leu Leu Glu Val Gly Leu Ile Tyr Leu
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Leu Val Gln Val Ala Pro Lys Lys
20 25 30

Cys Gly Met Thr Val Val Gln Asn Glu Arg Asn Asp Leu Ile Pro Thr
35 40 45

Arg Thr Val Thr Gly Glx Arg Met Cys Ile Asp Tyr Cys Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ala Tyr Tyr Cys Phe Leu Asp Arg Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Arg Asp Gln Glu Lys Met
100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Ser Phe
115 120 125

Arg Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Val Leu Ala Ile
130 135 140

Phe Ser Asp Met Val Glu Lys Ser Ile Glu Val Phe Met Asp Glu Phe
145 150 155 160

Ser Ile Phe Gly Pro Leu Phe Asp Ser Cys Leu Arg Asn Leu Glu Met
165 170 175

Val Leu Gln Arg Cys Val Glx Thr Asn Leu Val Leu Asn Glx Glu Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Met Asp His Asn Ile Ser
195 200 205

Ala Arg Gly Ile Glu Val Asp Gln Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Leu Asn Val Lys Gly Val Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 138
 <211> 763
 <212> DNA
 <213> Glycine max

<400> 138
 gtgcgtaagg aggtctttaa gttcttggag gctgggctca tatatcccat ctctaatagc 60
 acttaggtaa gccagttaca ggtggttccc aagaaagggtg gaatgacagt agtacagaat 120
 gagaagaatg acttgatacc aacacgaact gtcactagct ggcgaatatg catcgattat 180
 cgcaagctga atgaggccac ccggaaggac cacttccctc tacctttcat ggatcagatg 240
 ttggagagac ttgcagggca ggcgtattat tgtttcttgg atggatactc gagatataat 300
 cagattgcgg tggaccctag agaccaagag aagacgacct tcacatgccc tttttggcgt 360
 ctttgcttac agaaggatgc cattcgggtt atgtaatgca ccagccacat ttcagagggtg 420
 catgctggcc attttttcag acatggtgga gaaaaatata gaggtattca tggatgactt 480
 ttcagttttt gggccctcat ttgacagttg tttgaggaac cttagagatgg tacttttagag 540
 gtgcgtagag actaatttag tgctgaactg ggagaagtgt cattttatgg ttcgagaggg 600
 catagtccctg agccacaaga tctcagctag agggattgag gttgaccggg caaagataga 660
 cgtcatagag aagctgccac caccattgaa tattaaagggt gtcagaagtt tcttaggggca 720
 tgcaggattc tacaggagat tcataaagga ctttacaaag gtt 763

<210> 139
 <211> 254
 <212> PRT
 <213> Glycine max

<400> 139
 Val Arg Lys Glu Val Phe Lys Phe Leu Glu Ala Gly Leu Ile Tyr Pro
 1 5 10 15
 Ile Ser Asn Ser Thr Glx Val Ser Pro Val Gln Val Val Pro Lys Lys
 20 25 30
 Gly Gly Met Thr Val Val Gln Asn Glu Lys Asn Asp Leu Ile Pro Thr
 35 40 45
 Arg Thr Val Thr Ser Trp Arg Ile Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60
 Glu Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met

65

70

75

80

Leu Glu Arg Leu Ala Gly Gln Ala Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Arg Tyr Asn Gln Ile Ala Val Asp Pro Arg Asp Gln Glu Lys Thr
100 105 110

Thr Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Leu Ala Ile
130 135 140

Phe Ser Asp Met Val Glu Lys Asn Ile Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Pro Ser Phe Asp Ser Cys Leu Arg Asn Leu Glu Met
165 170 175

Val Leu Glx Arg Cys Val Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Ser His Lys Ile Ser
195 200 205

Ala Arg Gly Ile Glu Val Asp Arg Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Leu Asn Ile Lys Gly Val Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 140

<211> 762

<212> DNA

<213> Glycine max

<400> 140

gtgcgcaagg aggttttgaa gcttctagag gttgggctta tctaccccat ctccgacagc 60
gcttgggtaa gccagtcctt ggtggtgtcg aagaaagagg gcatgacagt cattcgaaat 120
gaaaagaatg acctgatacc aacacgaact gtcactagtt ggaaattatg catcgattac 180
cgcaagctca acgaagccac aaggaaagac catttccctc tacccttcat ggatcagatg 240
ttggagagac ttgcaggaca cgcttattat tgcttcttgg atgcatactt tggatataat 300
cagattgttg tagaccccaa ggatcaggag aagatggcct tcacatgccc ttttgggtgtc 360

tttgcctata gacggattcc atttgggttg tgcaatgcac ctaccacatt ccaaattgtgc 420
 atgttggcca tttttgcaga tatagtggag aaaagcatcg aagtattcat ggatgacttt 480
 tcagtatttg tgccctcatt agaaagttgt ttgaagaagt tggagatggg actacaaaga 540
 tgcgtggaaa caaacttagt actaaattgg gagaagtgtc acttcatggg tcgagaaggc 600
 atagtcttag gccataaaat ttcgaccoga ggaattgagg tagaccaaac aaagattgat 660
 gtcattgaaa agttgccacc accatcaaat gttaaaggca tcaggagctt cctaggacaa 720
 gccaggttct acagaagatt catcaaggac ttcacaaaag tt 762

<210> 141

<211> 254

<212> PRT

<213> Glycine max

<400> 141

Val Arg Lys Glu Val Leu Lys Leu Leu Glu Val Gly Leu Ile Tyr Pro
 1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Pro Val Leu Val Val Ser Lys Lys
 20 25 30

Glu Gly Met Thr Val Ile Arg Asn Glu Lys Asn Asp Leu Ile Pro Thr
 35 40 45

Arg Thr Val Thr Ser Trp Lys Leu Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60

Glu Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
 65 70 75 80

Leu Glu Arg Leu Ala Gly His Ala Tyr Tyr Cys Phe Leu Asp Ala Tyr
 85 90 95

Phe Gly Tyr Asn Gln Ile Val Val Asp Pro Lys Asp Gln Glu Lys Met
 100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Ile Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Gln Met Cys Met Leu Ala Ile
 130 135 140

Phe Ala Asp Ile Val Glu Lys Ser Ile Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Ser Val Phe Val Pro Ser Leu Glu Ser Cys Leu Lys Lys Leu Glu Met
 165 170 175

Val Leu Gln Arg Cys Val Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Leu Gly His Lys Ile Ser
 195 200 205

Thr Arg Gly Ile Glu Val Asp Gln Thr Lys Ile Asp Val Ile Glu Lys
 210 215 220

Leu Pro Pro Pro Ser Asn Val Lys Gly Ile Arg Ser Phe Leu Gly Gln
 225 230 235 240

Ala Arg Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 142
 <211> 762
 <212> DNA
 <213> Glycine max

<400> 142
 gtgcggaagg aggttattaa gttgctagag gcaggggtca tttacctaat ctcagatagt 60
 tcataggtta gtctgttca tgttgctctg aaaaagggag gtatgacagt gataaagaat 120
 gatagagatg agttaattcc tacaagaata gttactggat ggaggatggg tattgattac 180
 aagaagctaa atgaagccac caggaaagac cattaccgcg ttccttcat ggatcaaagt 240
 cttgagagac ttgcagggca atcttctac tatttattag atggatactc gggctacaat 300
 caaattgcag tggatcctca ggaccaagaa aagacagctt tcacatgtcc ttttggtgta 360
 tttgcttatt gccgcatgtc gttcgggtta tgtaatgcc caactacttt ccagagatgt 420
 atgatggcaa tttttgctga catggtaaag aaatgtattg aagtttttat ggacgatttc 480
 tctgtctttg gtgcattctt tgaaaattgc ctagcaaatt tagagaaagt gttacaacgc 540
 tatgaagaat ctaatttggg gctcaactgg gaaaaatgtc actttatggg tcaagaaggt 600
 atcatgctgg gacacaagat ttctagaaga ggaattaagg tggataaggc aaagattgag 660
 gttattgata aacttccacc tctagttaat gttagaggca tacgaagttt tttgggtcat 720
 gctagattct atcgatgatt tatcaaggac ttcaccaaag tt 762

<210> 143
 <211> 254
 <212> PRT
 <213> Glycine max

<400> 143
 Val Arg Lys Glu Val Ile Lys Leu Leu Glu Ala Gly Leu Ile Tyr Leu
 1 5 10 15
 Ile Ser Asp Ser Ser Glx Val Ser Pro Val His Val Ala Leu Lys Lys
 20 25 30

Gly Gly Met Thr Val Ile Lys Asn Asp Arg Asp Glu Leu Ile Pro Thr
 35 40 45

Arg Ile Val Thr Gly Trp Arg Met Gly Ile Asp Tyr Lys Lys Leu Asn
 50 55 60

Glu Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Asp Gln Met
 65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ser Ser Tyr Tyr Leu Leu Asp Gly Tyr
 85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Gln Asp Gln Glu Lys Thr
 100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Ser Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Phe Gln Arg Cys Met Met Ala Ile
 130 135 140

Phe Ala Asp Met Val Lys Lys Cys Ile Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Ser Val Phe Gly Ala Ser Phe Glu Asn Cys Leu Ala Asn Leu Glu Lys
 165 170 175

Val Leu Gln Arg Tyr Glu Glu Ser Asn Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Met Leu Gly His Lys Ile Ser
 195 200 205

Arg Arg Gly Ile Lys Val Asp Lys Ala Lys Ile Glu Val Ile Asp Lys
 210 215 220

Leu Pro Pro Leu Val Asn Val Arg Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Arg Phe Tyr Arg Glx Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 144

<211> 761

<212> DNA

<213> Glycine max

<400> 144

gtgcggaagg aggtctttaa gttgctggaa gcaggcctta tttatcccat ttcggatagt 60
gcatgggtta gccctatgca agttgtccct aagaaaggag gtatgacagt cattaagaat 120
gataaagatg agttgatata cacaaggacc gtcaccgggt ggagaatgtg cattgactat 180
cgaaagctga atgatgcacc cggaaggacc attatccact ccctttcatg ggccatatgc 240
ttgaaagact tggtgggcaa tcctattatt gttttctaga tggatattat ggttataatc 300
agattgttgt agatcccaaa gatcaagaga agacagcttt cacctaccct tttggtgtat 360
tcgcatatca gtgcatgcct tttggtctat gcaatgcccc agctacattt cagaggtgta 420
tgatggctat tttttctgat atggtggaaa tatgcattga agttttcatg gacgatttct 480
ctatttttgg gccatccttt gaagggtgct tatcaaactt tgaaaaagta ttaaagagat 540
gtgaagagtc caatctagtt ctcaattgga agaaatgcca tttcatgggt caagaaggaa 600
taatgttggg gcataaaatt tcagtaagag ggatagaggt ggacaaggca aagattgatg 660
taattgagaa actacttgct cccatgaatg tcaagggaat aagaagcttc ttaggacatg 720
cagggttcta caggcgattc ataaaagact tcaccaaagt t 761

<210> 145

<211> 254

<212> PRT

<213> Glycine max

<400> 145

Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Pro Met Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Ile Lys Asn Asp Lys Asp Glu Leu Ile Ser Thr
35 40 45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Asp Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Gly His Met
65 70 75 80

Leu Glu Arg Leu Val Gly Gln Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Tyr Gly Tyr Asn Gln Ile Val Val Asp Pro Lys Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Tyr Pro Phe Gly Val Phe Ala Tyr Gln Cys Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Ala Ile

130

135

140

Phe Ser Asp Met Val Glu Ile Cys Ile Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Ile Phe Gly Pro Ser Phe Glu Gly Cys Leu Ser Asn Leu Glu Lys
165 170 175

Val Leu Lys Arg Cys Glu Glu Ser Asn Leu Val Leu Asn Trp Lys Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Met Leu Gly His Lys Ile Ser
195 200 205

Val Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Leu Ala Pro Met Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 146

<211> 762

<212> DNA

<213> Glycine max

<400> 146

gtgcgtaagg aggtggtcaa gttgcttgaa gtaggactaa tttatccaat ctctgatagt 60
gcttggtgta gttcgaacta ggtggtgcct aagaaagggtg gtatgacggt gatccacaat 120
gataagaatg atcttattcc tacacagaca atcattagggt ggcaaatgtg tattgactat 180
cacaagttga atgatgtcac caagaaggac cattttcctc tgccattcat ggaccaaagt 240
ttagagaggt tagctggcca agctttttat tgttttttgg atggttattc tgggtataac 300
caaatagcgg tgcattctaa agatcaagag aagactacta tcatatgccc atttggtgtc 360
tttgcttaca gacaaatgtc atttgaactg tgtaatgccc ctaccacott ctagagattc 420
atgatggcca tttttgctga ccttgtggag aaatgcatag aggtgttcat gaatgatttc 480
tctattttcg gctcttcctt ttatcattgt ttatccaacc tgggaattagt gttacaacgg 540
tgtgcggaag ccaatttgtt gatgaactgg gagaaatgtc atttcatggt ccaagagggg 600
attgtcttag gccacaagat ctcttcaga ggggttgaag tggacaaggc aaaaattgat 660
gttattgaga agttgcctcc acctatgaat gtgaaaggca tccgaagttt tctcgaatat 720
gttggatttt ataggaggtt catcaaagac ttcacgaaag tt 762

<210> 147

<211> 254

<212> PRT

<213> Glycine max

<400> 147

Val Arg Lys Glu Val Val Lys Leu Leu Glu Val Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Ser Asn Glx Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Ile His Asn Asp Lys Asn Asp Leu Ile Pro Thr
35 40 45

Gln Thr Ile Ile Arg Trp Gln Met Cys Ile Asp Tyr His Lys Leu Asn
50 55 60

Asp Val Thr Lys Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ala Phe Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val His Leu Lys Asp Gln Glu Lys Thr
100 105 110

Thr Ile Ile Cys Pro Phe Gly Val Phe Ala Tyr Arg Gln Met Ser Phe
115 120 125

Glu Leu Cys Asn Ala Pro Thr Thr Phe Glx Arg Phe Met Met Ala Ile
130 135 140

Phe Ala Asp Leu Val Glu Lys Cys Ile Glu Val Phe Met Asn Asp Phe
145 150 155 160

Ser Ile Phe Gly Ser Ser Phe Tyr His Cys Leu Ser Asn Leu Glu Leu
165 170 175

Val Leu Gln Arg Cys Ala Glu Thr Asn Leu Leu Met Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Ser Arg Gly Leu Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Met Asn Val Lys Gly Ile Arg Ser Phe Leu Glu Tyr
225 230 235 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 148
 <211> 762
 <212> DNA
 <213> Glycine max

<400> 148
 gtgcgtaagg aggttctcaa gcttttggag gttgggctca tatacctcat ctctgacagc 60
 gcttgggtaa gcctagtaca ggtggctccc aagaaatgcg gaatgacagt ggtacaaaat 120
 gagaggaatg acttgatacc aacacgaact gtcactggct agcggatgtg tatcgactac 180
 tgcaagttga atgaagccac acggaaggac catttccctt tacctttcat ggatcagatg 240
 ctggagaggc ttgcagggca ggcatactac tgtttcttgg atagatattc aggatacaac 300
 caaatcgcg tagaccccag agatcaggag aagatggcct ttacatgccc ctttggcgtc 360
 tttgcttaca gaaggatgtc attcagggtta tgtaacgcac cagccacatt tcagaggtgc 420
 atgctggcca ttttttcaga catggtggag aagagcatcg aggtatttat ggatgaattc 480
 tcgatttttg gacccttatt tgacagtgtc ttaaggaact tagagatggg actacagagg 540
 tgcgtataga ctaacttggg actaaattag gaaaaatgtc atttcatggg tcgagagggg 600
 atagtgatgg gccacaatat ctcagctaga gggattgagg ttgatcagac aaagatagac 660
 gtcattgaga agttgccacc accactgaat gttaaaggcg tcagaagttt cttagggcat 720
 gcaggtttct acaggagggt cataaaaagac ttcacaaagg tt 762

<210> 149
 <211> 254
 <212> PRT
 <213> Glycine max

<400> 149
 Val Arg Lys Glu Val Leu Lys Leu Leu Glu Val Gly Leu Ile Tyr Leu
 1 5 10 15
 Ile Ser Asp Ser Ala Trp Val Ser Leu Val Gln Val Ala Pro Lys Lys
 20 25 30
 Cys Gly Met Thr Val Val Gln Asn Glu Arg Asn Asp Leu Ile Pro Thr
 35 40 45
 Arg Thr Val Thr Gly Glx Arg Met Cys Ile Asp Tyr Cys Lys Leu Asn
 50 55 60
 Glu Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
 65 70 75 80
 Leu Glu Arg Leu Ala Gly Gln Ala Tyr Tyr Cys Phe Leu Asp Arg Tyr
 85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Arg Asp Gln Glu Lys Met
100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Ser Phe
115 120 125

Arg Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Leu Ala Ile
130 135 140

Phe Ser Asp Met Val Glu Lys Ser Ile Glu Val Phe Met Asp Glu Phe
145 150 155 160

Ser Ile Phe Gly Pro Leu Phe Asp Ser Cys Leu Arg Asn Leu Glu Met
165 170 175

Val Leu Gln Arg Cys Val Glx Thr Asn Leu Val Leu Asn Glx Glu Lys
180 185 190

Cys His Phe Met Val Arg Glu Gly Ile Val Met Gly His Asn Ile Ser
195 200 205

Ala Arg Gly Ile Glu Val Asp Gln Thr Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Leu Asn Val Lys Gly Val Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 150

<211> 761

<212> DNA

<213> Glycine max

<400> 150

gtgCGtaagg aggttttttaa gttgctggaa gcaggtctta tttatcccat ttcggatagt 60
gcatgggtta gccctgtgca gggtgtcccc aagaaagaag gtaagacagt cattaaggat 120
gaaaaggatg agttgatatc cacaaggact atcaccgggt ggagaatgtg cattgactat 180
cagaagctga atgatgccac ccggaaggac cattatccac tccctttcat ggaccaaagt 240
cttgaaagac ttgccgggca atcttattat tgttttctgg atggatattc tggttataat 300
cagattgatg tagatcccaa ggatcaagag aagactgctt tcacctaccc ttttggtgta 360
ttgcctatc ggcgcatgcc ctttggtttg tgcaatgcc cagctacatt tcagaggtgt 420
atgatgacta ttttttctga tatggtggaa aaatgaattg aagttttcat ggacgatttc 480
tctatTTTTG ggccatcttt tgaagggtgc ttatcaaatac ttgaaagagt attaaagaga 540
cgtgaagagt ccaaactagt tctcaattgg gagaaatgcc atttcatggt tcaagaagga 600

atagtgtggg gcataaaatt tcagtaagag ggatagaggt ggacaaggca aagattgatg 660
 taatagagaa actacctcct cccatgaatg tcaagggaat aagaagcttc ctaggacatg 720
 cagggttcta caagcgattc atcaaagatt tcacaaagg t 761

<210> 151
 <211> 254
 <212> PRT
 <213> Glycine max

<400> 151
 Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro
 1 5 10 15

Ile Ser Asp Ser Ala Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
 20 25 30

Glu Gly Lys Thr Val Ile Lys Asp Glu Lys Asp Glu Leu Ile Ser Thr
 35 40 45

Arg Thr Ile Thr Gly Trp Arg Met Cys Ile Asp Tyr Gln Lys Leu Asn
 50 55 60

Asp Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Asp Gln Met
 65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
 85 90 95

Ser Gly Tyr Asn Gln Ile Asp Val Asp Pro Lys Asp Gln Glu Lys Thr
 100 105 110

Ala Phe Thr Tyr Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Pro Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Thr Ile
 130 135 140

Phe Ser Asp Met Val Glu Lys Glx Ile Glu Val Phe Met Asp Asp Phe
 145 150 155 160

Ser Ile Phe Gly Pro Ser Phe Glu Gly Cys Leu Ser Asn Leu Glu Arg
 165 170 175

Val Leu Lys Arg Arg Glu Glu Ser Lys Leu Val Leu Asn Trp Glu Lys
 180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser

195

200

205

Val Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Met Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Lys Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 152

<211> 762

<212> DNA

<213> Glycine max

<400> 152

gtgcggaaag aggtattcaa gttactagag gcagggctca tctacccaat ttcagatagc 60
tcctgggtta gtccggttca agttgttcca aaaaaaggag ggatgacagt ggtaaaaaat 120
gatagaaatg agctaattcc tacaagaaga gtcaccagat ggagaatgtg tattgattat 180
aggaagctca atgaagccac aagaaaagac cattaccacac ttcccttcat ggatcaaagt 240
cttaagagac ttgcaaggca atccttctac cgtttcttgg acggatactc aggttacaat 300
cagattgcag tggatcctca ggatcaagaa aaaacagctt ttacatgtcc tttcagtgtt 360
tttgcttatc gccgcatgcc gttcgggttta tgtaatgcct ctactacttt tcagagatgt 420
atgatggcaa tttttgatga catggtagag aaatgtattg aagtctttat ggatgatttt 480
tcgttctttg gtgcatcttt tggaaattgc ttagcaaatt tagagaaagt gttacaacgt 540
tgtgaaaaat ctaatttggg gcttaactgg gaaaaatgtc actttatggg acaagaaggt 600
attgtgctag gacacaaaat ctctaaaaga ggaattgagg tggttaaaga aaaactagat 660
gttattgata aacttccacc cccagttaat gtaaaaggca tacacagttt tttgggtcat 720
gttggatttt atcggcgatt cataaaggac ttcaccaaag tt 762

<210> 153

<211> 254

<212> PRT

<213> Glycine max

<400> 153

Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ser Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Gly Gly Met Thr Val Val Lys Asn Asp Arg Asn Glu Leu Ile Pro Thr
35 40 45

Arg Arg Val Thr Arg Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
50 55 60

Glu Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Lys Arg Leu Ala Arg Gln Ser Phe Tyr Arg Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Gln Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Cys Pro Phe Ser Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Ser Thr Thr Phe Gln Arg Cys Met Met Ala Ile
130 135 140

Phe Asp Asp Met Val Glu Lys Cys Ile Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Phe Phe Gly Ala Ser Phe Gly Asn Cys Leu Ala Asn Leu Glu Lys
165 170 175

Val Leu Gln Arg Cys Glu Lys Ser Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Lys Arg Gly Ile Glu Val Val Lys Glu Lys Leu Asp Val Ile Asp Lys
210 215 220

Leu Pro Pro Pro Val Asn Val Lys Gly Ile His Ser Phe Leu Gly His
225 230 235 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 154

<211> 761

<212> DNA

<213> Glycine max

<400> 154

gtgcgtaaag aagttttgaa gctgctagaa gcagacctta tttatcccat ttcggatagt 60
acatgggtta gccctgtgca agttgtcccc gagaaaggag gtatgacagt cattaagaat 120

gataaagatg agttgatatc cacaaggact gtcaccgggt gagaatgtgc attgactatc 180
 ggaagctgaa tgatgccacc cagaaggacc attattcact ccctttcatg gaccagatgc 240
 ttgaaagact tgccggacaa tcctattatt gttttctgaa tggatactct ggctataatc 300
 agattgtggt agatcccaaa gatcaggaga aaactgcttt cacctgcctt tttgggtgat 360
 ttgcatacaa gcgtatgcat tttggcttgt gtaatgctcc aactacgtgt cagaggtgta 420
 tgatgactat tttttctggt atcgtggaaa aatgcattga acttttcatg gacgatttct 480
 ctatttttgg gccatctttt gaaggctact tatcaaacct tgaaagagta ttacagagat 540
 gtgaagagtc taatctagtt ctcaattggg agaaatgccca tttcatgggt caagaaggaa 600
 tagtgctggg gcataaaatt tcagtaagag ggatagaggt ggacaaggca aagattgatg 660
 taattgagaa actacctcct cccatgattg tcaagggaat aagaagcctc ctaggacatg 720
 tagggttcta caggcgattc atcaaagact tcacaaagggt t 761

<210> 155

<211> 254

<212> PRT

<213> Glycine max

<400> 155

Val Arg Lys Glu Val Leu Lys Leu Leu Glu Ala Asp Leu Ile Tyr Pro
 1 5 10 15

Ile Ser Asp Ser Thr Trp Val Ser Pro Val Gln Val Val Pro Glu Lys
 20 25 30

Gly Gly Met Thr Val Ile Lys Asn Asp Lys Asp Glu Leu Ile Ser Thr
 35 40 45

Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60

Asp Ala Thr Gln Lys Asp His Tyr Ser Leu Pro Phe Met Asp Gln Met
 65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ser Tyr Tyr Cys Phe Leu Asn Gly Tyr
 85 90 95

Ser Gly Tyr Asn Gln Ile Val Val Asp Pro Lys Asp Gln Glu Lys Thr
 100 105 110

Ala Phe Thr Cys Leu Phe Gly Val Phe Ala Tyr Lys Arg Met His Phe
 115 120 125

Gly Leu Cys Asn Ala Pro Thr Thr Cys Gln Arg Cys Met Met Thr Ile
 130 135 140

Phe Ser Gly Ile Val Glu Lys Cys Ile Glu Leu Phe Met Asp Asp Phe
 145 150 155 160

Ser Ile Phe Gly Pro Ser Phe Glu Gly Tyr Leu Ser Asn Leu Glu Arg
165 170 175

Val Leu Gln Arg Cys Glu Glu Ser Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Val Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Met Ile Val Lys Gly Ile Arg Ser Leu Leu Gly His
225 230 235 240

Val Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 156

<211> 762

<212> DNA

<213> Glycine max

<400> 156

gtgCGtaagg aggttttttaa gttgctggaa gcaggtctta tttatcccat ttcggatagt 60
gcatgggtta gccctgtgca ggttgtcccc aagaaagaag gtaagacagt cattaaggat 120
gaaaaagatg agttgatatc cacaaggact atcaccgggt ggagaatgtg cattgactat 180
cagaagctga atgatgccac ccggaaggac cattatccac tccctttcat ggaccaaagt 240
cttgaaagac ttgccgggca atcttattat tgttttctgg atggatattc tggttataat 300
cagattgatg tagatcccaa ggatcaagag aagactgctt tcacctaccc ttttggtgta 360
ttcgcctatc ggcgcatgcc ctttggtttg tgcaatgccc cagctacatt tcagaggtgt 420
atgatgacta ttttttctga tatggtggaa aaatgaattg aagttttcat ggacgatgtc 480
tctatttttg ggccatcttt tgaagggtgc ttatcaaatac ttgaaagagt attaaagaga 540
cgtgaagagt ccaaactagt tctcaattgg gagaaatgcc atttcatggt tcaagaagga 600
atagtgttgg ggcataaaat ttcagtaaga gggatagagg tggacaaggc aaagattgat 660
gtaatagaga aactacctcc tcccatgaat gtcaagggaa taagaagctt cctaggacat 720
gcagggttct acaagcgatt catcaaagac ttctcaaaag tt 762

<210> 157

<211> 254

<212> PRT

<213> Glycine max

<400> 157

Val Arg Lys Glu Val Phe Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro

1

5

10

15

Ile Ser Asp Ser Ala Trp Val Ser Pro Val Gln Val Val Pro Lys Lys
20 25 30

Glu Gly Lys Thr Val Ile Lys Asp Glu Lys Asp Glu Leu Ile Ser Thr
35 40 45

Arg Thr Ile Thr Gly Trp Arg Met Cys Ile Asp Tyr Gln Lys Leu Asn
50 55 60

Asp Ala Thr Arg Lys Asp His Tyr Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly Gln Ser Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Asp Val Asp Pro Lys Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Tyr Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Met Thr Ile
130 135 140

Phe Ser Asp Met Val Glu Lys Glx Ile Glu Val Phe Met Asp Asp Val
145 150 155 160

Ser Ile Phe Gly Pro Ser Phe Glu Gly Cys Leu Ser Asn Leu Glu Arg
165 170 175

Val Leu Lys Arg Arg Glu Glu Ser Lys Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

Val Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Met Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Lys Arg Phe Ile Lys Asp Phe Ser Lys Val
245 250

<210> 158
 <211> 761
 <212> DNA
 <213> Glycine max

<400> 158
 gtgcggaagg aggttcttaa gtccttgaa gcagggtca tctatcttat ctcagatagt 60
 gttgggtgag tccagtgcac gtggttccca agaagggtgg gaagactgtg gtgagaaatg 120
 agaaaaatga cctcattcta acccgaactg tcacaggatg gagaatgtgc atagattatc 180
 ggaagttgaa tgatgccatc aagaaggatc atttccctct accattcata gatcagatgc 240
 ttgagagggt agcaagccag tctttctatt atttcttgga tgaatattct agatacaatc 300
 agattgctat acatcccaag gaccaagaga agattgcatt tacatgccca tttgggtgtct 360
 ttgcctatag aaggatgcca ttggaactat gcaatgctcc agctaccttt tagaggcata 420
 tgctagccat attcgctaac atggtggaga aatgcatcga agtggttcata gatgattttt 480
 cgggtgtttg tccatccttt gtttgtgtgt tgaccaatct agagctagtg ttgaagtact 540
 gtgaggagac aaatttagta ttgaattggg agaaatgtca tttcatgggc caagaaggaa 600
 ttatgttggg gcataaaatt ttgctagag gtattgaggt ggacaaggcc aaaattgatg 660
 ttattgaaaa gctgcctcca ccagtcaatg taaaaggcat caggagtttt cttggacaca 720
 ctgggtttctt caggcgtttc atcaaggact tcacaaaagt t 761

<210> 159
 <211> 254
 <212> PRT
 <213> Glycine max

<400> 159
 Val Arg Lys Glu Val Leu Lys Leu Leu Glu Ala Gly Leu Ile Tyr Leu
 1 5 10 15
 Ile Ser Asp Ser Ala Trp Val Ser Pro Val His Val Val Pro Lys Lys
 20 25 30
 Gly Gly Lys Thr Val Val Arg Asn Glu Lys Asn Asp Leu Ile Leu Thr
 35 40 45
 Arg Thr Val Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Lys Leu Asn
 50 55 60
 Asp Ala Ile Lys Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
 65 70 75 80
 Leu Glu Arg Leu Ala Ser Gln Ser Phe Tyr Tyr Phe Leu Asp Glu Tyr
 85 90 95
 Ser Arg Tyr Asn Gln Ile Ala Ile His Pro Lys Asp Gln Glu Lys Ile
 100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Glu Leu Cys Asn Ala Pro Ala Thr Phe Glx Arg His Met Leu Ala Ile
130 135 140

Phe Ala Asn Met Val Glu Lys Cys Ile Glu Val Phe Ile Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Pro Ser Phe Val Cys Cys Leu Thr Asn Leu Glu Leu
165 170 175

Val Leu Lys Tyr Cys Glu Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Met Leu Gly His Lys Ile Phe
195 200 205

Ala Arg Gly Ile Glu Val Asp Lys Ala Lys Ile Asp Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Val Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Thr Gly Phe Phe Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250

<210> 160

<211> 762

<212> DNA

<213> Pisum sativum

<400> 160

gtgcgcaagg aagtactcaa gttgtagat tcgggaatga tttaccccat ttctgacagc 60
tcgtgggtaa gtccagtgc cgtggtacca aagaaaggag gaacctcagt aattttaaat 120
gaaaagaatg aactgatccc aactcgcaca gtgacagggg ggcgagtatg catcgatcac 180
agaagactga acacagcaac aagaaaggat cattttcctc tcccttttat tgatcaaagt 240
ttagaaagac ttgcaggtca tgagtattat tgctttctgg atggatattc gggatacaat 300
caaattgttg tagccccgga agatcaggaa aaaactgcat ttacatgtcc ttatgggtatt 360
ttcgtttaca gacggatgcc atttgggcta tgcaatgcc cagctacttt tcagaggtgt 420
atgacatcta tattctccga catgcttgaa aagtatatga aggtgtttat ggatgatttc 480
tctgtgtttg gttcttcttt tgataattgt ttagctaact tgtctcttgt tttgcaaaga 540
tgtcaggaata ctaaccttgt tctcaattgg gagaaatgtc atttcatggg gcaggaagga 600
attgtgctag gacacaaaat ttcccacaaa ggaattgaag tggacaaagc caaagtggag 660
gttatagcta acctcccacc tccggtgaat gaaaaaggga taaggagttt tttgggtcat 720
gcaggttttt atcgcaggtt catcaaagac ttcacaaagg tt 762

<210> 161
<211> 254
<212> PRT
<213> Pisum sativum

<400> 161

Val Arg Lys Glu Val Leu Lys Leu Leu Asp Ser Gly Met Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Ser Trp Val Ser Pro Val His Val Val Pro Lys Lys
20 25 30

Gly Gly Thr Ser Val Ile Leu Asn Glu Lys Asn Glu Leu Ile Pro Thr
35 40 45

Arg Thr Val Thr Gly Trp Arg Val Cys Ile Asp His Arg Arg Leu Asn
50 55 60

Thr Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Ile Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ala Gly His Glu Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Val Val Ala Pro Glu Asp Gln Glu Lys Thr
100 105 110

Ala Phe Thr Cys Pro Tyr Gly Ile Phe Ala Tyr Arg Arg Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Met Thr Ser Ile
130 135 140

Phe Ser Asp Met Leu Glu Lys Tyr Met Lys Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Ser Ser Phe Asp Asn Cys Leu Ala Asn Leu Ser Leu
165 170 175

Val Leu Gln Arg Cys Gln Glu Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Gln Glu Gly Ile Val Leu Gly His Lys Ile Ser
195 200 205

His Lys Gly Ile Glu Val Asp Lys Ala Lys Val Glu Val Ile Ala Asn
210 215 220

Leu Pro Pro Pro Val Asn Glu Lys Gly Ile Arg Ser Phe Leu Gly His
 225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
 245 250

<210> 162
 <211> 762
 <212> DNA
 <213> Pisum sativum

<400> 162
 gtgcgtaagg aggtctttaa actattggat gcgggaatga tttacccgat ctcgatagat 60
 ccgtgggtta gtcccgtgca cgtgggtccg aagaaggggtg gaatgaccgt aatccgtaat 120
 gacaaaagacg aattgatccc gactaaagtt gcaacggggt ggagaatatg tatagattat 180
 agacagttga ataccgcgac tcgaaaggac cattttccac tcccatttat ggatcaaagt 240
 cttgaaagac tatcgggcca acaatactat tgtttcttgg acgggtactc cgggtacaac 300
 caaattgcgg ttgaccgggt tgatcatgag aagacggctt tcacgtgtcc gtttggagt 360
 ttcgcataca gaaaaatgcc ctttgggctg tgcaatgcac cggcgacttt ccaacgatgc 420
 gtcctagcca tttttgccga tctaataagag aaaacaatgg acgtcttcat ggatgacttc 480
 tcggtatttg gtgggacgtt tagtctatgc ttggcaaatt tgaagacggg gttggaaagg 540
 tgtgtgaaga ccaatttggg gctaaattgg gaaaagtgtc acttcatggg gaccgagggg 600
 atcgtgctag gccacaaaagt ctctaaaagg gggcttgaag tggatagagc taaggttgaa 660
 gtaattgaaa aattaccccc tccggtgaat gtgaaaggca tccgtagctt tttggggcac 720
 gcgggggttt accggcgctt cattaaagac ttctcaaaag tt 762

<210> 163
 <211> 254
 <212> PRT
 <213> Pisum sativum

<400> 163
 Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Met Ile Tyr Pro
 1 5 10 15
 Ile Ser Asp Ser Pro Trp Val Ser Pro Val His Val Val Pro Lys Lys
 20 25 30
 Gly Gly Met Thr Val Ile Arg Asn Asp Lys Asp Glu Leu Ile Pro Thr
 35 40 45
 Lys Val Ala Thr Gly Trp Arg Ile Cys Ile Asp Tyr Arg Gln Leu Asn
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 Thr Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met

65

70

75

80

Leu Glu Arg Leu Ser Gly Gln Gln Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Val Asp His Glu Lys Thr
100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Lys Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Val Leu Ala Ile
130 135 140

Phe Ala Asp Leu Ile Glu Lys Thr Met Asp Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Gly Thr Phe Ser Leu Cys Leu Ala Asn Leu Lys Thr
165 170 175

Val Leu Glu Arg Cys Val Lys Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Thr Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Lys Arg Gly Leu Glu Val Asp Arg Ala Lys Val Glu Val Ile Glu Lys
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Leu Pro Pro Pro Val Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
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Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Ser Lys Val
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<212> PRT

<213> Pisum sativum

<400> 165

Val Arg Lys Glu Val Phe Lys Leu Leu Asp Ala Gly Met Ile Tyr Pro
1 5 10 15

Ile Ser Asp Ser Pro Trp Val Ser Pro Val His Val Val Pro Lys Lys
20 25 30

Gly Gly Ile Thr Val Ile Arg Asn Asp Lys Asp Glu Leu Ile Pro Thr
35 40 45

Lys Val Glu Thr Gly Trp Arg Met Cys Ile Asp Tyr Arg Arg Leu Asn
50 55 60

Thr Ala Thr Arg Lys Asp His Phe Pro Leu Pro Phe Met Asp Gln Met
65 70 75 80

Leu Glu Arg Leu Ser Gly Gln Gln Tyr Tyr Cys Phe Leu Asp Gly Tyr
85 90 95

Ser Gly Tyr Asn Gln Ile Ala Val Asp Pro Ala Asp His Glu Lys Thr
100 105 110

Ala Phe Thr Cys Pro Phe Gly Val Phe Ala Tyr Arg Lys Met Pro Phe
115 120 125

Gly Leu Cys Asn Ala Pro Ala Thr Phe Gln Arg Cys Val Gln Ala Ile
130 135 140

Phe Val Asp Leu Ile Glu Lys Thr Met Glu Val Phe Met Asp Asp Phe
145 150 155 160

Ser Val Phe Gly Gly Ser Phe Ser Leu Cys Leu Ala Asn Leu Lys Thr
165 170 175

Val Leu Glu Arg Cys Val Lys Thr Asn Leu Val Leu Asn Trp Glu Lys
180 185 190

Cys His Phe Met Val Thr Glu Gly Ile Val Leu Gly His Lys Val Ser
195 200 205

Arg Arg Gly Leu Glu Val Asp Arg Ala Lys Val Glu Val Ile Glu Lys
210 215 220

Leu Pro Pro Pro Val Asn Val Lys Gly Ile Arg Ser Phe Leu Gly His
225 230 235 240

Ala Gly Phe Tyr Arg Arg Phe Ile Lys Asp Phe Thr Lys Val
245 250